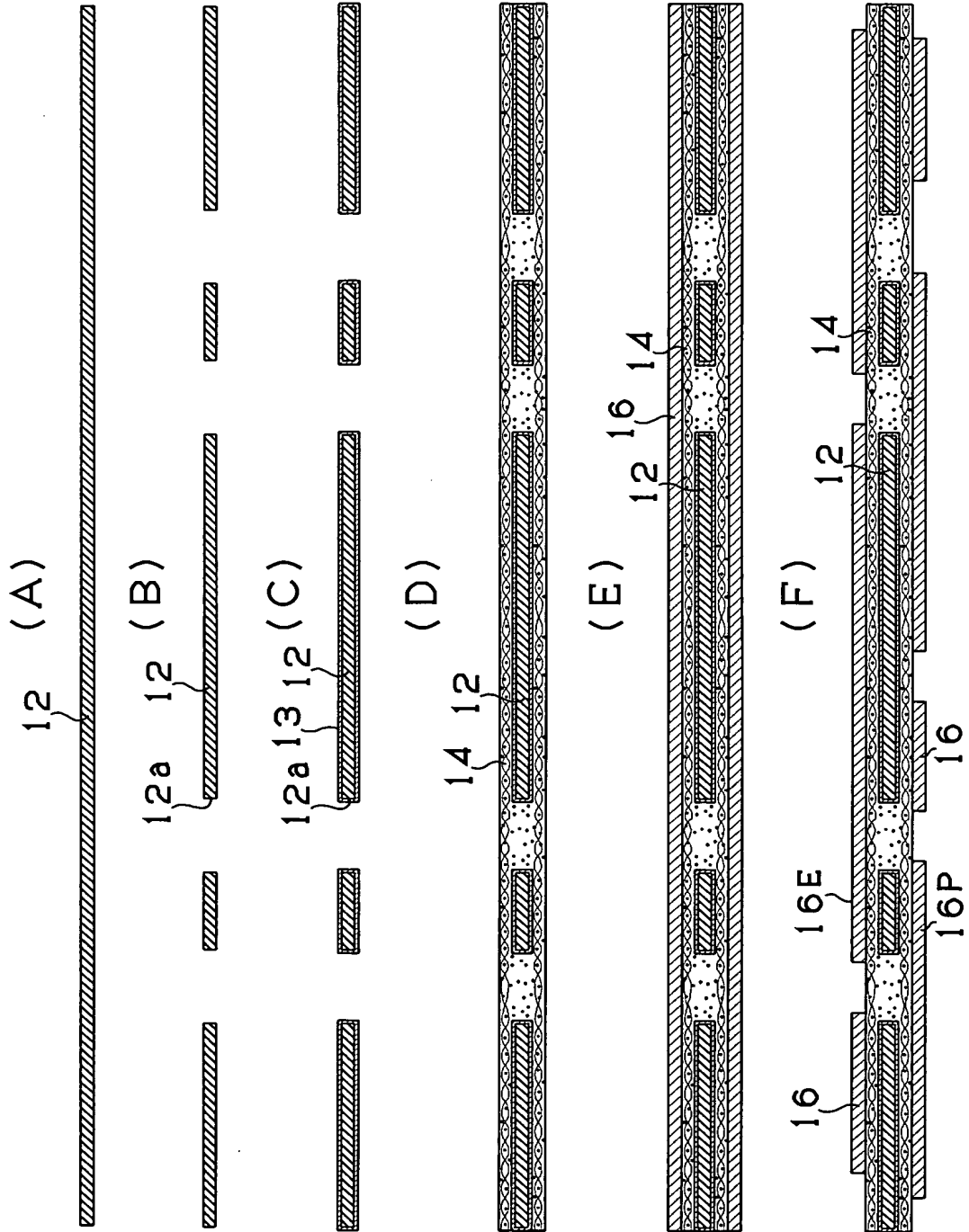


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Fig. 1



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Fig. 2

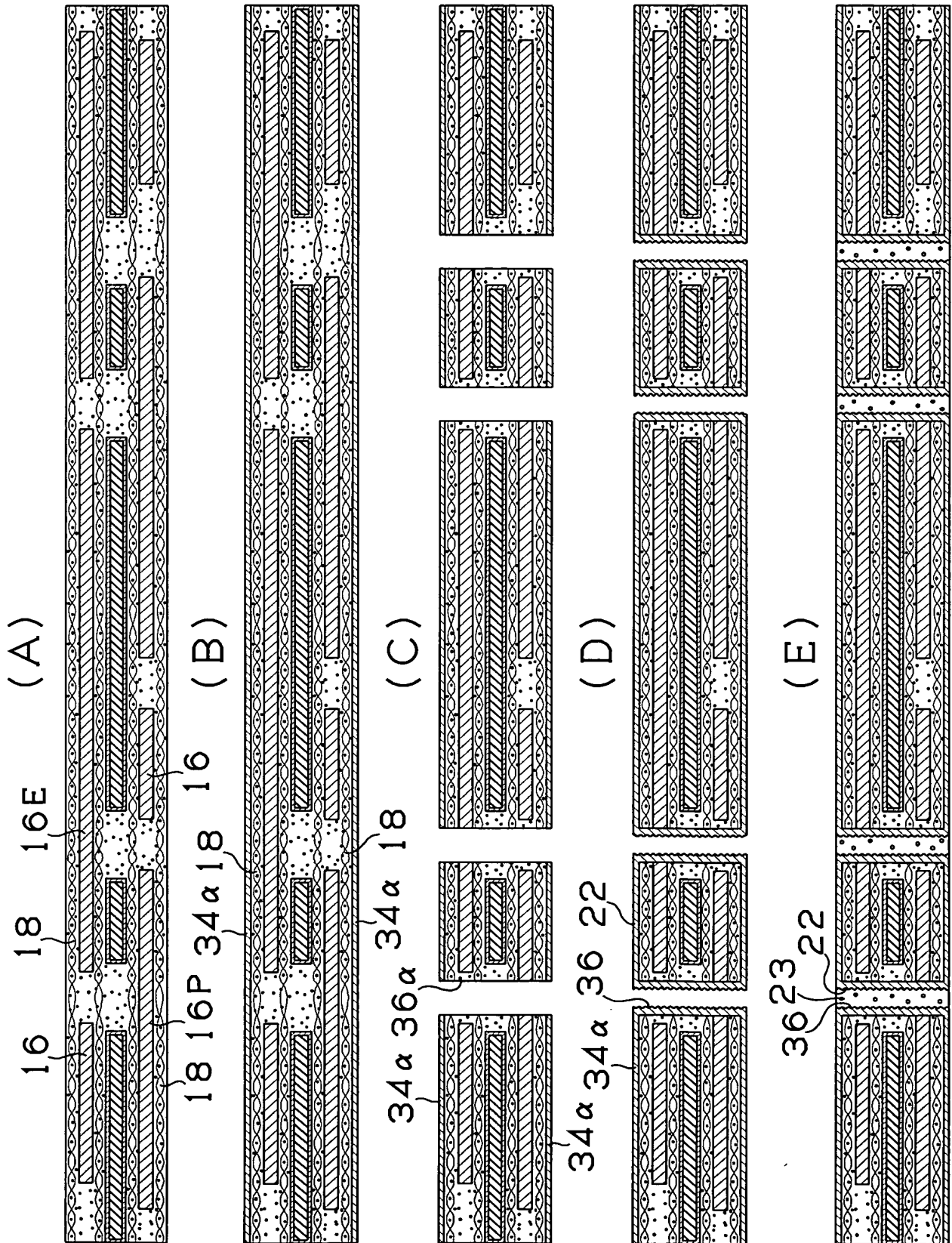
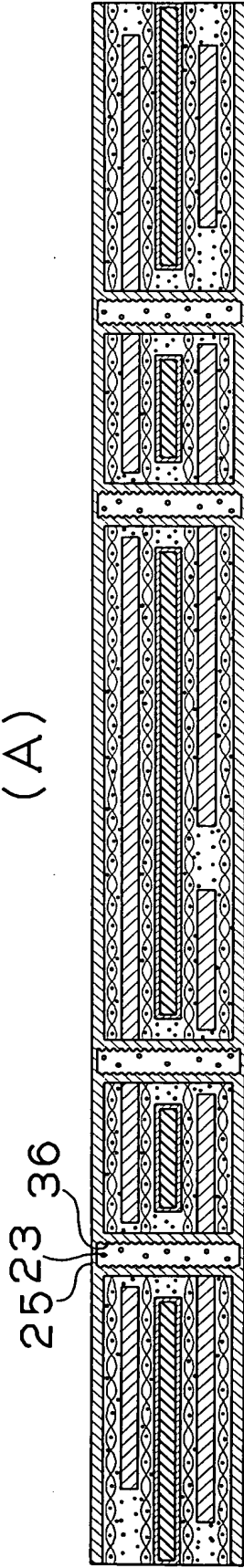
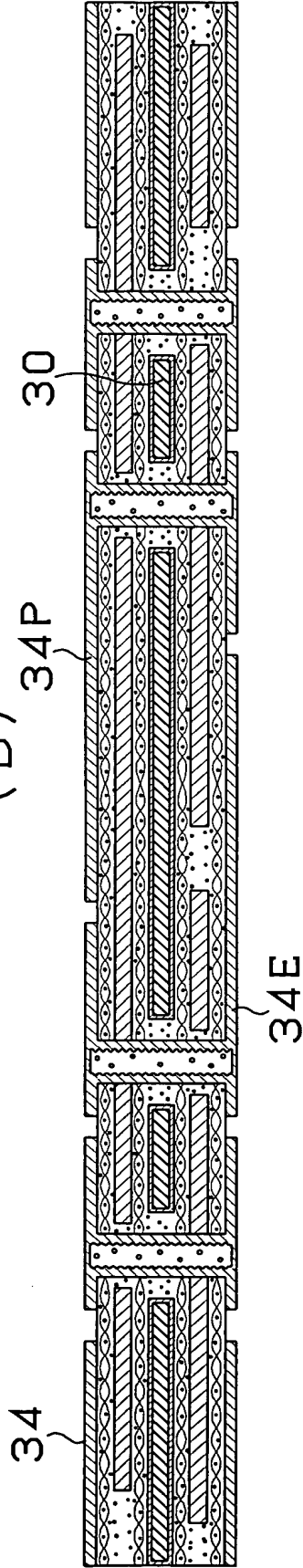


Fig. 3

(A)



(B)



(C)

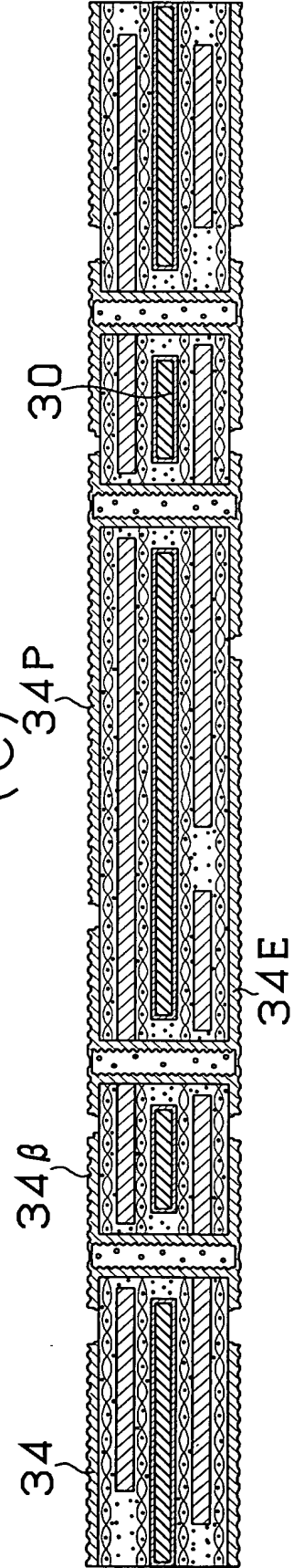
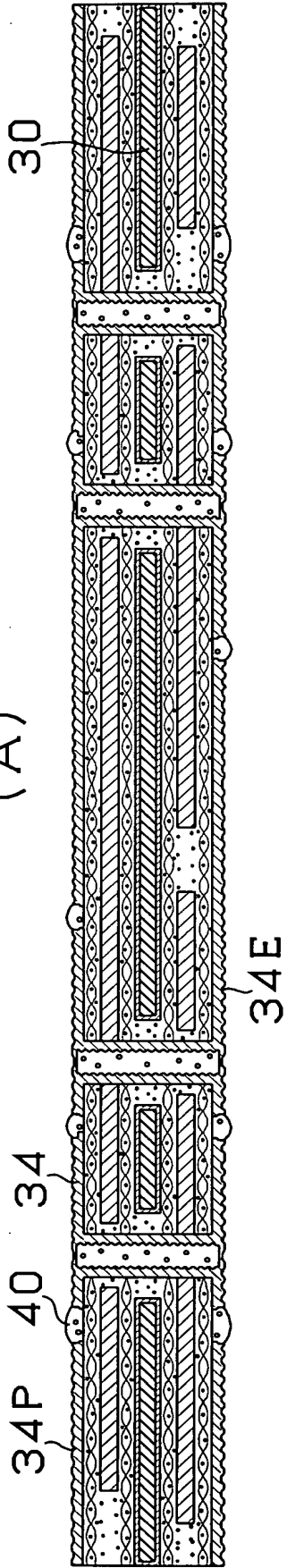
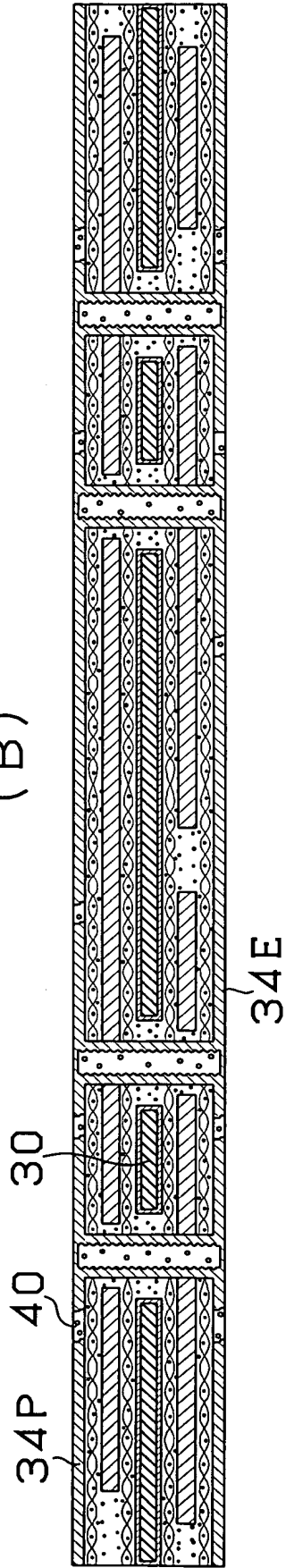


Fig. 4

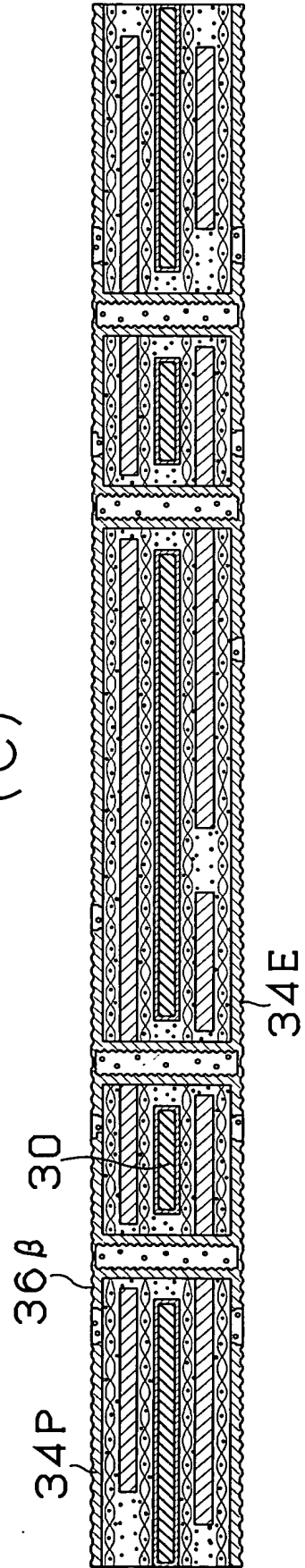
(A)



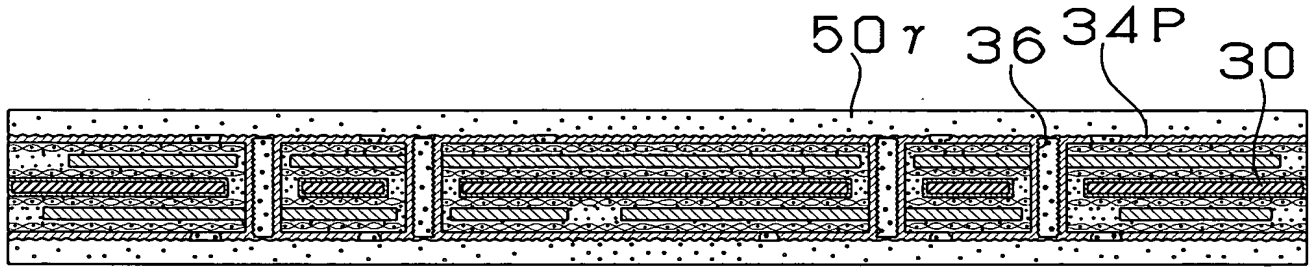
(B)



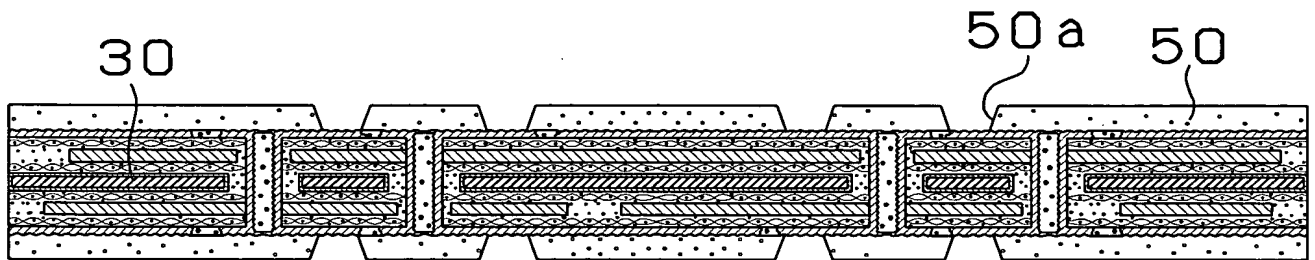
(C)



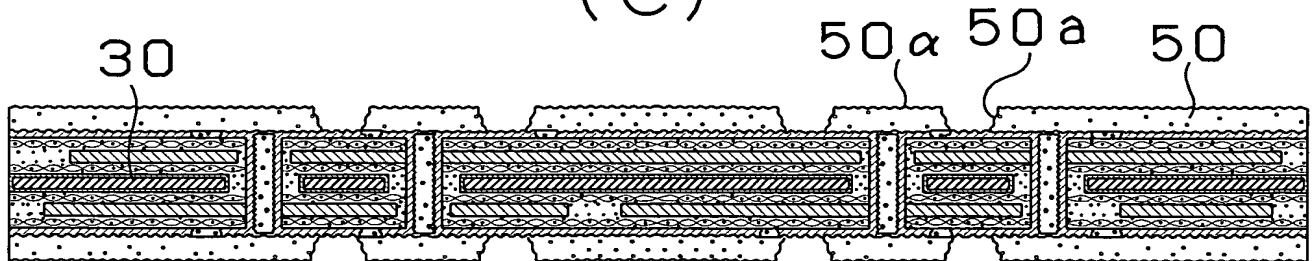
5/40
Fig. 5
(A)



(B)



(C)



(D)

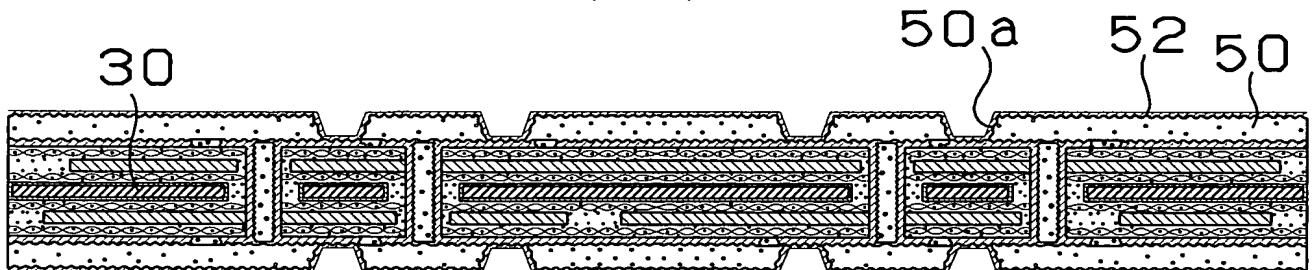
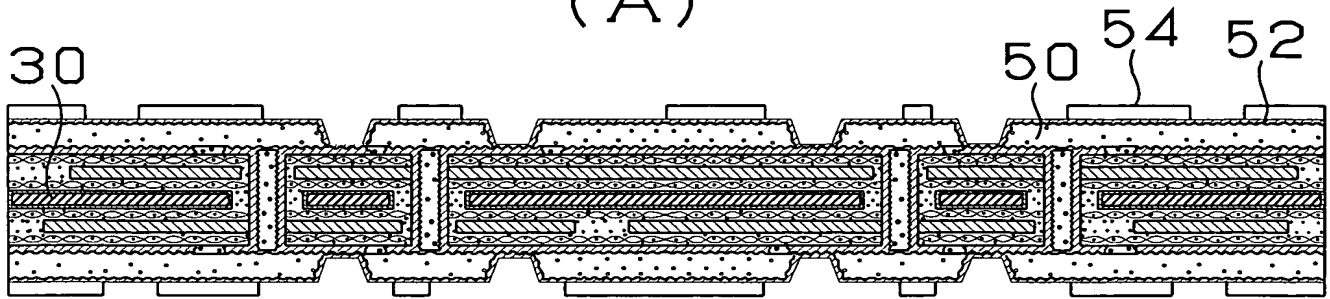
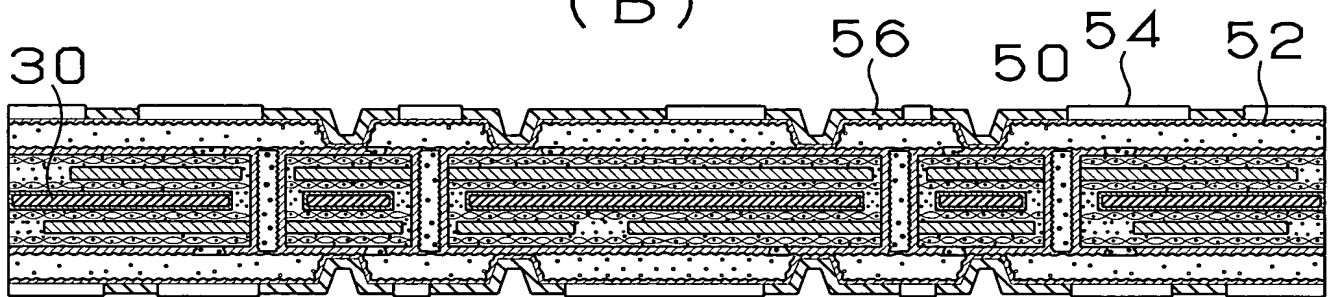


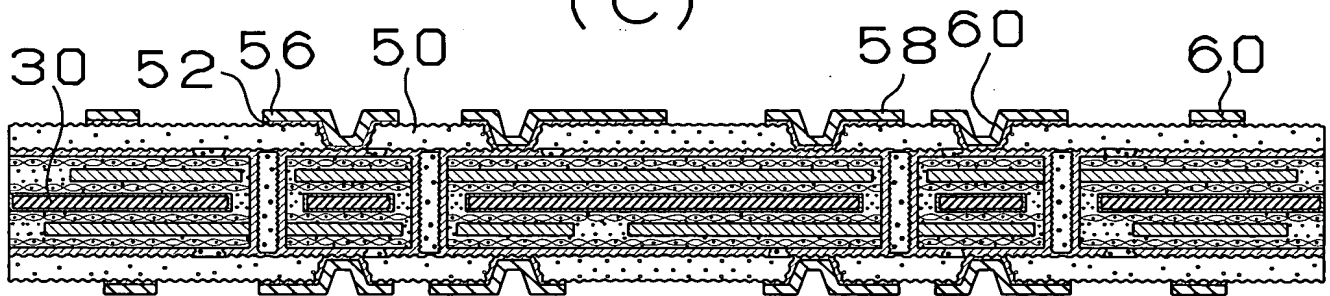
Fig. 6
 (A)



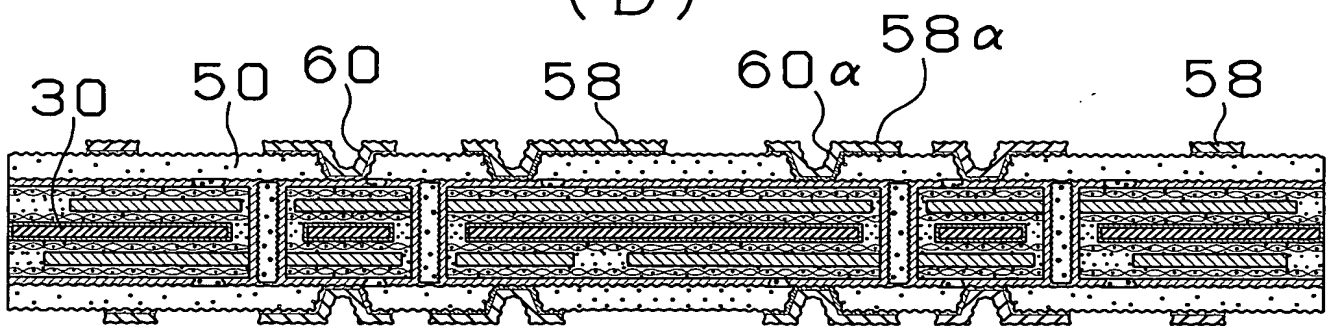
(B)



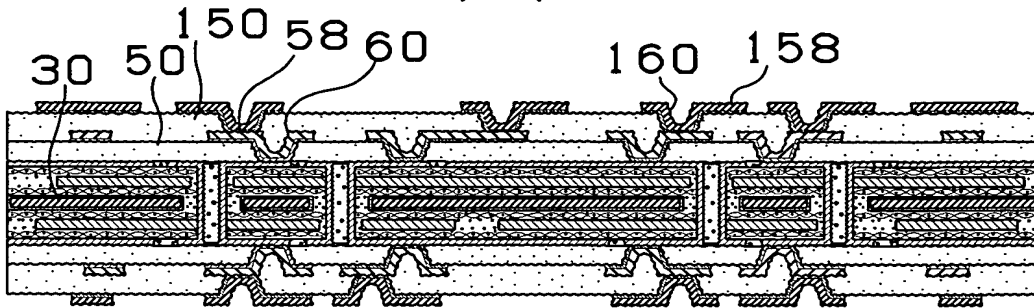
(C)



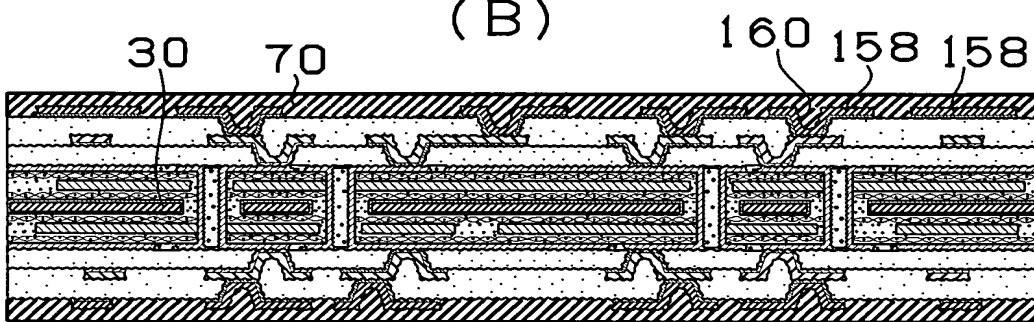
(D)



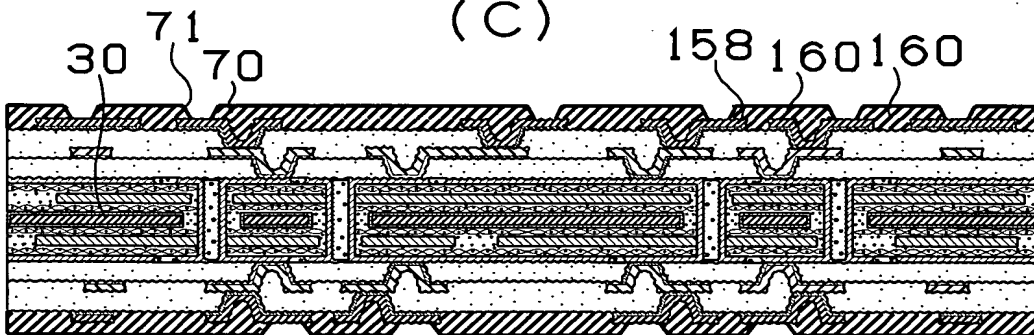
7/40
Fig. 7
(A)



(B)



(C)



(D)

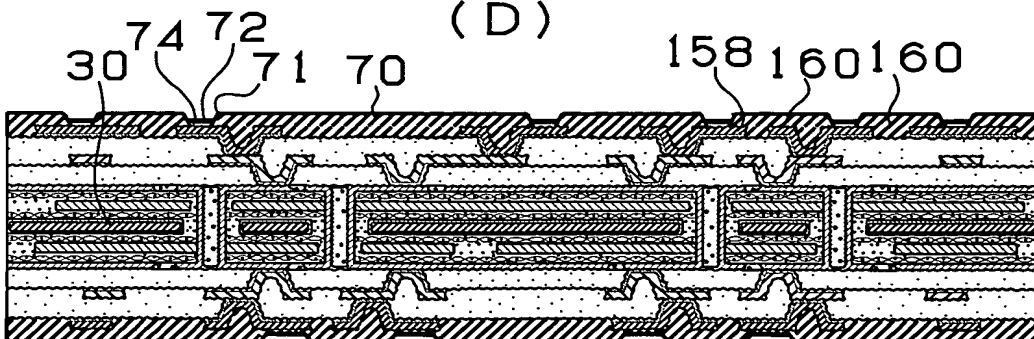


Fig.8

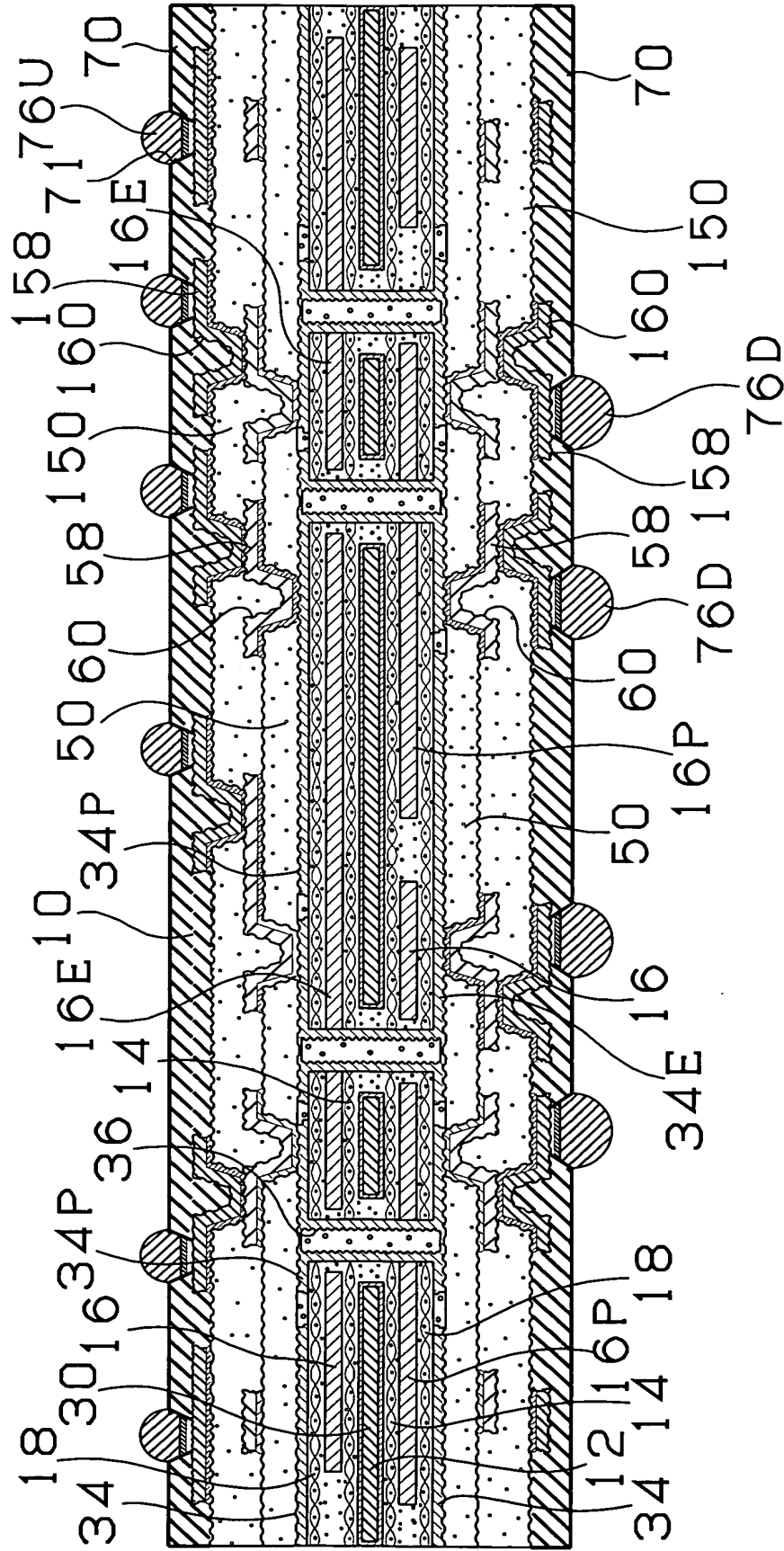


Fig.9

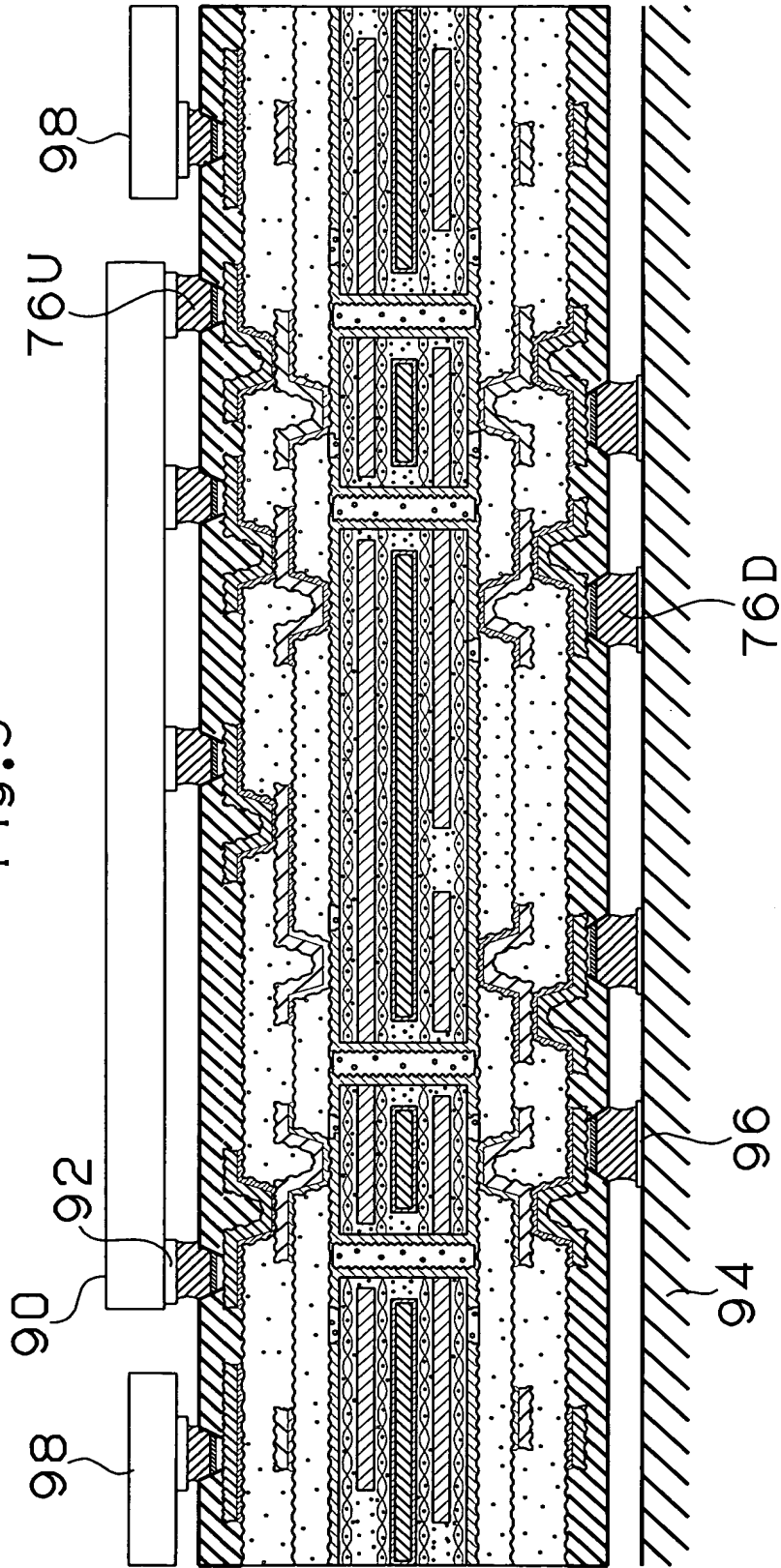
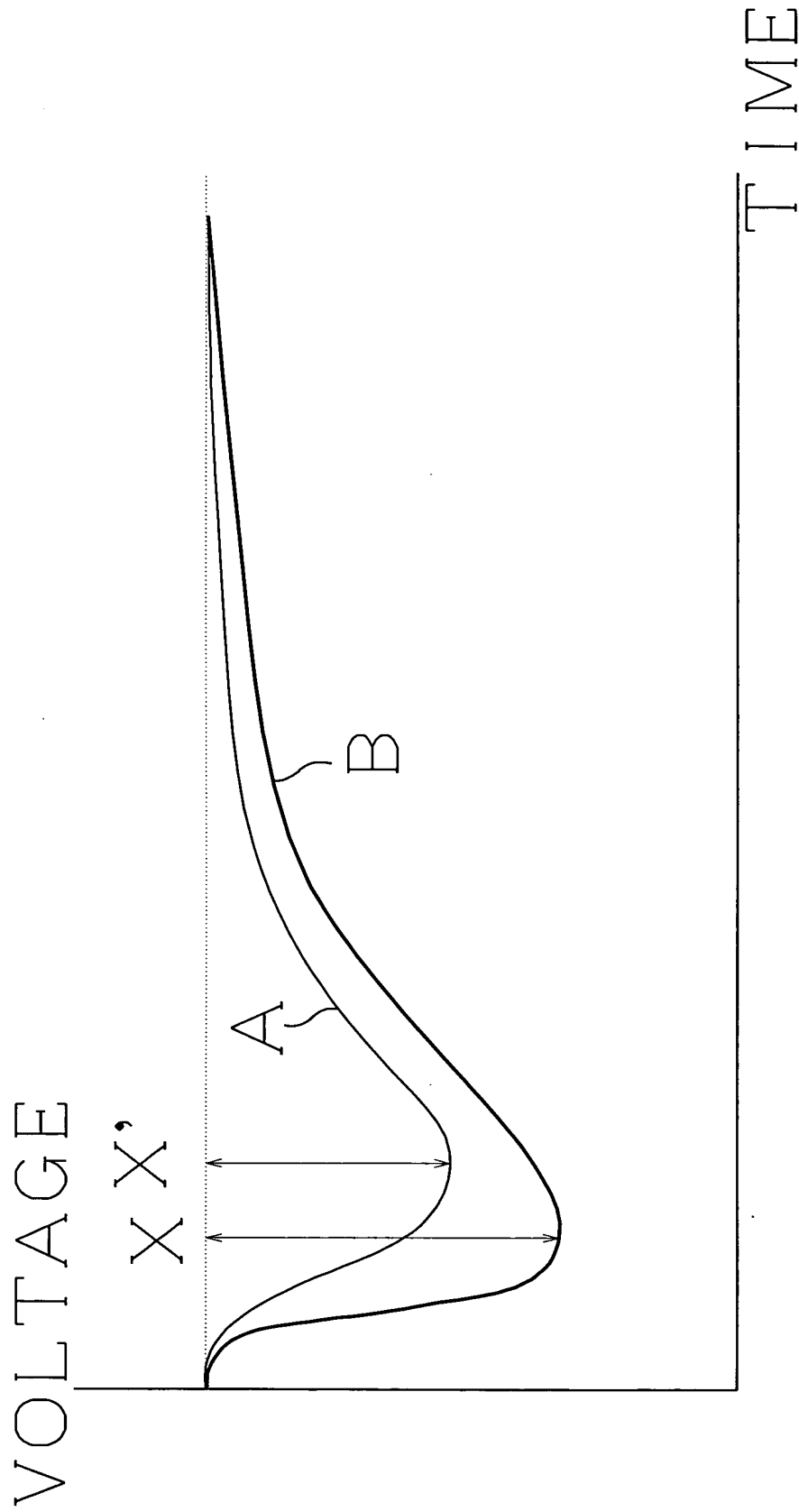
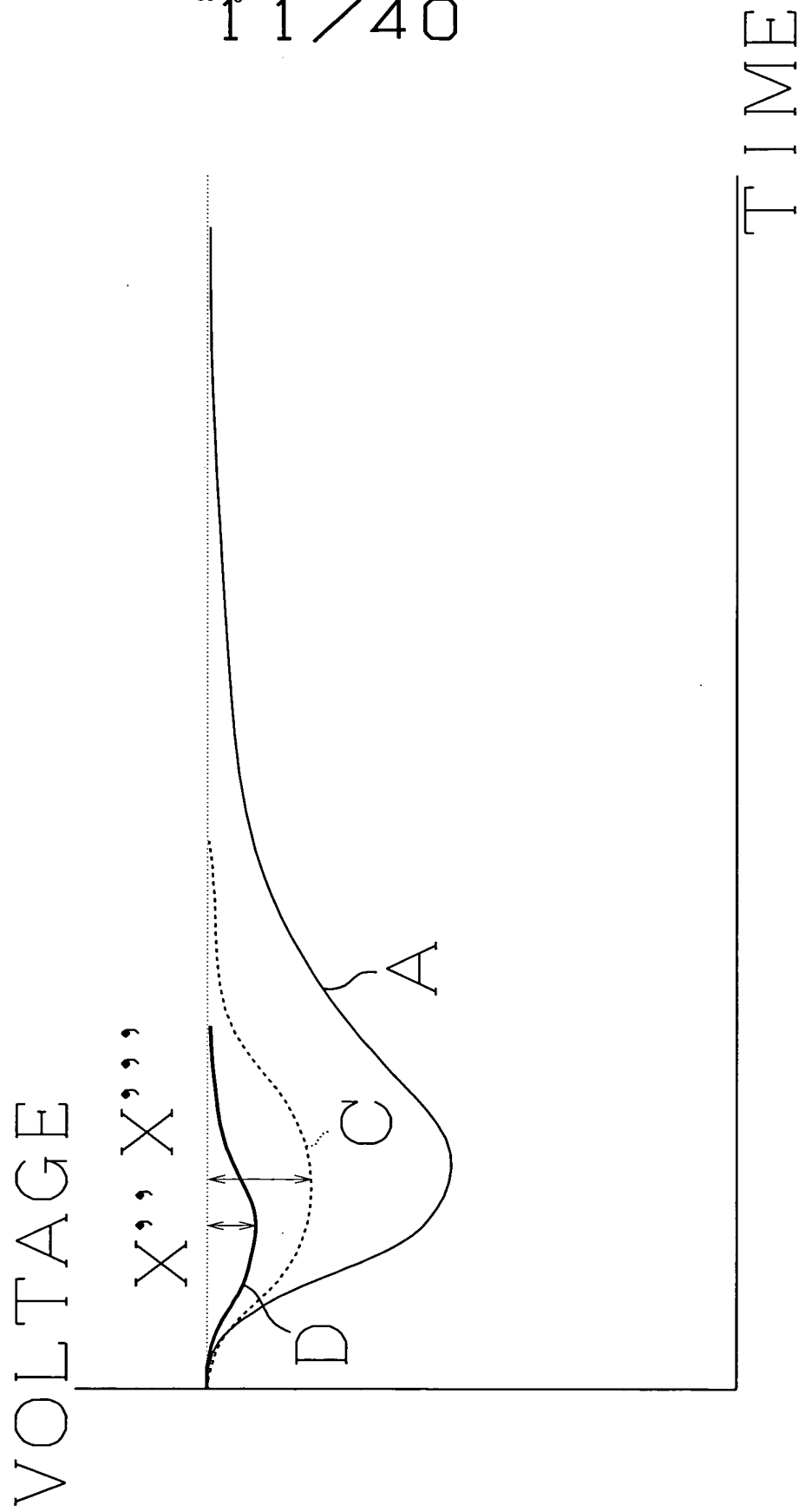


Fig. 10



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Fig. 11



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Fig. 12

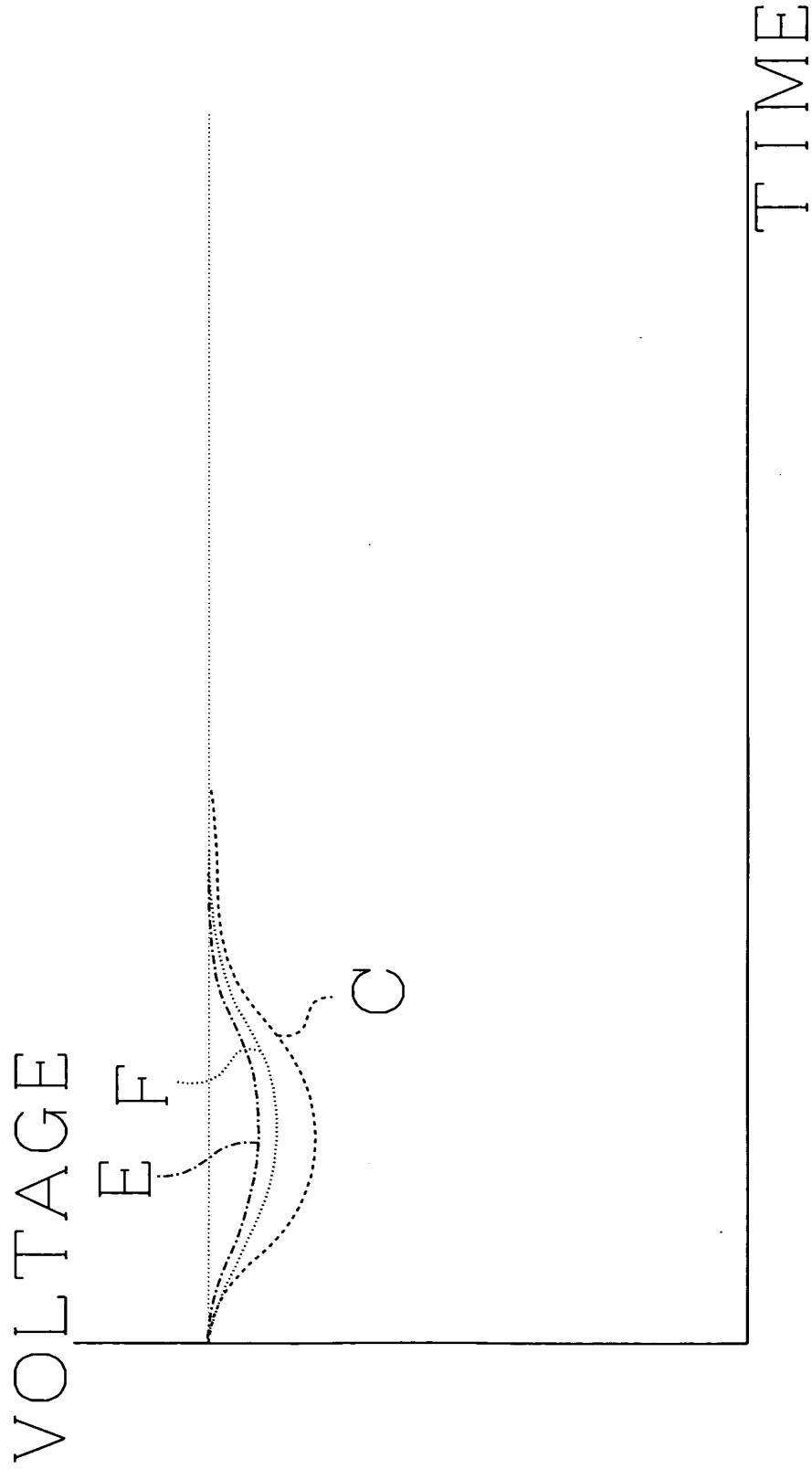


Fig.13

#	$\alpha 1 / \alpha 2$	QUANTITY OF LAYERS IN INNER LAYER	THICKNESS OF CONDUCTIVE LAYER ON INTERLAYER INSULATION LAYER (μm)	THICKNESS OF POWER SOURCE LAYER ON FRONT SURFACE LAYER OF CORE SUBSTRATE (μm)	THICKNESS OF POWER SOURCE LAYER IN INNER LAYER OF CORE SUBSTRATE (μm)	SUM OF THICKNESSES OF POWER SOURCE LAYERS OF CORE (μm)	AMOUNT OF VOLTAGE DROP (V)	RESULT OF HAST TEST
FIRST EMBODIMENT—1	2	2	20	15	25	40	0.091	O
FIRST EMBODIMENT—2	1.2	2	20	9	15	24	0.093	O
FIRST EMBODIMENT—3	3	2	20	15	45	60	0.085	O
FIRST EMBODIMENT—4	3.75	2	20	15	60	75	0.085	O
FIRST EMBODIMENT—5	30.75	12	20	15	100	615	0.095	O
FIRST EMBODIMENT—6	40.75	16	20	15	100	815	0.097	O
FIRST EMBODIMENT—7	3	2	20	45	15	60	0.087	O
FIRST EMBODIMENT—8	3.75	2	20	60	15	75	0.086	O
FIRST EMBODIMENT—9	3.25	2	20	15	50	65	0.084	O
FIRST EMBODIMENT—10	8.25	2	20	15	150	165	0.083	O
FIRST EMBODIMENT—11	9.5	2	20	15	175	190	0.09	x
FIRST EMBODIMENT—12	10.75	2	20	15	200	215	0.093	x
FIRST EMBODIMENT—28	7	2	20	15	125	140	0.084	O
FIRST COMPARATIVE EXAMPLE—1	1	2	20	10	10	20	0.108	O
FIRST COMPARATIVE EXAMPLE—2	42	16	20	40	100	840	0.103	O
FIRST COMPARATIVE EXAMPLE—3	50.75	20	20	15	100	1015	0.123	O

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Fig.14

#	WIDTH OF CONDUCTOR/INTERVAL OF CONDUCTORS (μm)				
	5/5	7.5/7.5	10/10	12.5/12.5	15/15
FIRST EMBODIMENT—3	○	○	○	○	○
FIRST EMBODIMENT—4	○	○	○	○	○
FIRST EMBODIMENT—7	×	×	○	○	○
FIRST EMBODIMENT—8	×	×	○	○	○

Fig.15

#	$\alpha 1 /$ $\alpha 2$	QUANTITY OF LAYERS IN INNER LAYER	THICKNESS OF CONDUCTIVE LAYER ON INTERLAYER INSULATION LAYER (μm)	THICKNESS OF POWER SOURCE LAYER ON FRONT SURFACE LAYER OF CORE SUBSTRATE (μm)	THICKNESS OF POWER SOURCE LAYER IN INNER LAYER OF CORE SUBSTRATE (μm)	SUM OF THICKNESSES OF POWER SOURCE LAYERS OF CORE (μm)	AMOUNT OF VOLTAGE DROP (V)	PRESENCE/ABSENCE OF MALFUNCTION		
								No.1 IC MOUNTED	No.2 IC MOUNTED	No.3 IC MOUNTED
FIRST EMBODIMENT-1	2	2	20	15	25	40	0.091	NONE	YES	YES
FIRST EMBODIMENT-2	1.2	2	20	9	15	24	0.093	NONE	YES	YES
FIRST EMBODIMENT-3	3	2	20	15	45	60	0.085	NONE	NONE	NONE
FIRST EMBODIMENT-4	3.75	2	20	15	60	75	0.085	NONE	NONE	NONE
FIRST EMBODIMENT-5	30.75	12	20	15	100	615	0.095	NONE	YES	YES
FIRST EMBODIMENT-6	40.75	16	20	15	100	815	0.097	NONE	YES	YES
FIRST EMBODIMENT-7	3	2	20	45	15	60	0.087	NONE	NONE	YES
FIRST EMBODIMENT-8	3.75	2	20	60	15	75	0.086	NONE	NONE	YES
FIRST EMBODIMENT-9	3.25	2	20	15	50	65	0.084	NONE	NONE	NONE
FIRST EMBODIMENT-10	8.25	2	20	15	150	165	0.083	NONE	NONE	YES
FIRST EMBODIMENT-11	9.5	2	20	15	175	190	0.09	NONE	YES	YES
FIRST EMBODIMENT-12	10.75	2	20	15	200	215	0.093	NONE	YES	YES
FIRST EMBODIMENT-27	4	4	20	15	32.5	80	0.087	NONE	NONE	YES
FIRST EMBODIMENT-28	7	2	20	15	125	140	0.084	NONE	NONE	NONE
FIRST COMPARATIVE EXAMPLE-1	1	2	20	10	10	20	0.108	YES	YES	YES
FIRST COMPARATIVE EXAMPLE-2	42	16	20	40	100	840	0.103	YES	YES	YES
FIRST COMPARATIVE EXAMPLE-3	50.75	20	20	15	100	1015	0.123	YES	YES	YES

Fig.16

#	$\alpha 1$ / α 2	HAVING NO DUMMY LAND TH%	QUANTITY OF LAYERS IN INNER LAYER	THICKNESS OF CONDUCTIVE LAYER ON INTERLAYER INSULATION LAYER (μm)	THICKNESS OF POWER SOURCE LAYER ON FRONT SURFACE LAYER OF CORE SUBSTRATE (μm)	THICKNESS OF POWER SOURCE LAYER IN INNER LAYER OF CORE SUBSTRATE (μm)	SUM OF THICKNESSES OF POWER SOURCE LAYERS OF CORE (μm)	PRESENCE/ABSENCE OF MALFUNCTION		
								No.1 IC MOUNTED	No.2 IC MOUNTED	No.3 IC MOUNTED
FIRST EMBODIMENT-13	3	50	2	20	15	45	60	NONE	NONE	NONE
FIRST EMBODIMENT-14	3	100	2	20	15	45	60	NONE	NONE	NONE
FIRST EMBODIMENT-15	3.25	50	2	20	15	50	65	NONE	NONE	NONE
FIRST EMBODIMENT-16	3.25	100	2	20	15	50	65	NONE	NONE	NONE
FIRST EMBODIMENT-17	3.75	50	2	20	15	60	75	NONE	NONE	NONE
FIRST EMBODIMENT-18	3.75	100	2	20	15	60	75	NONE	NONE	NONE
FIRST EMBODIMENT-19	8.25	50	2	20	15	150	165	NONE	NONE	NONE
FIRST EMBODIMENT-20	8.25	100	2	20	15	150	165	NONE	NONE	NONE
FIRST EMBODIMENT-21	9.5	50	2	20	15	175	190	NONE	NONE	YES
FIRST EMBODIMENT-22	9.5	100	2	20	15	175	190	NONE	NONE	YES
FIRST EMBODIMENT-23	10.75	50	2	20	15	200	215	NONE	NONE	YES
FIRST EMBODIMENT-24	10.75	100	2	20	15	200	215	NONE	NONE	YES
FIRST EMBODIMENT-25	3	50	2	20	45	15	60	NONE	NONE	YES
FIRST EMBODIMENT-26	3	100	2	20	45	15	60	NONE	NONE	YES
FIRST EMBODIMENT-29	4	50	4	20	15	32.5	80	NONE	NONE	NONE
FIRST EMBODIMENT-30	4	100	4	20	15	32.5	80	NONE	NONE	NONE

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Fig.17

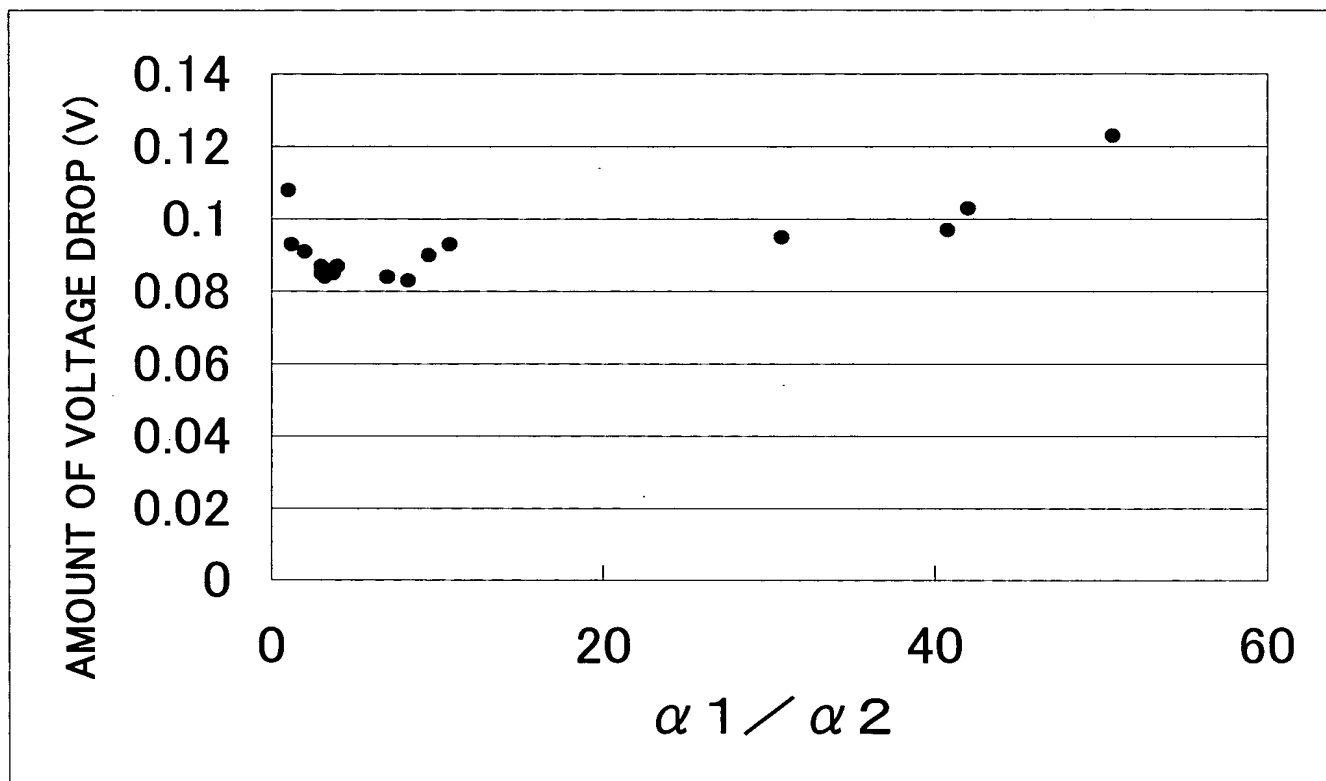


Fig. 18

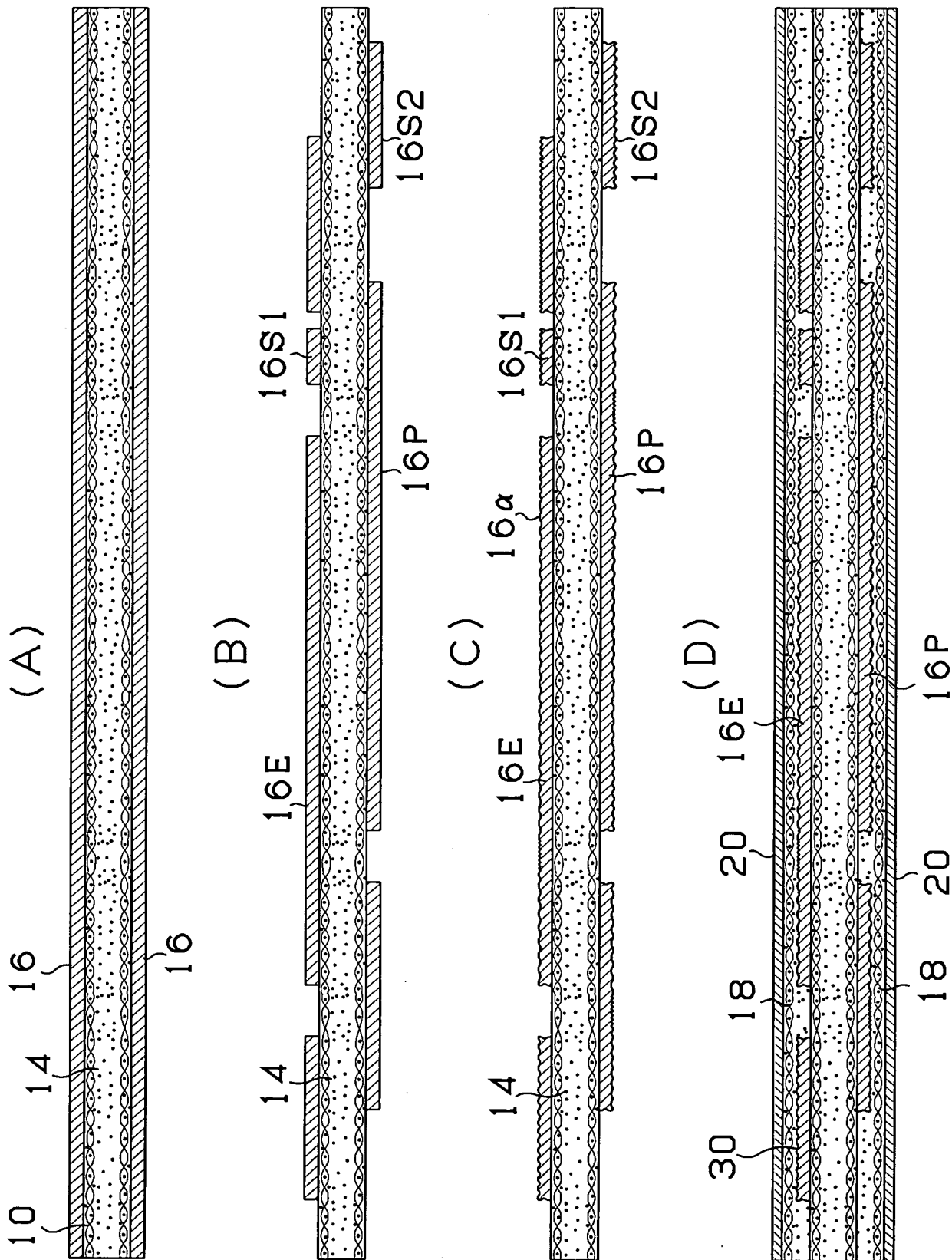


Fig. 19

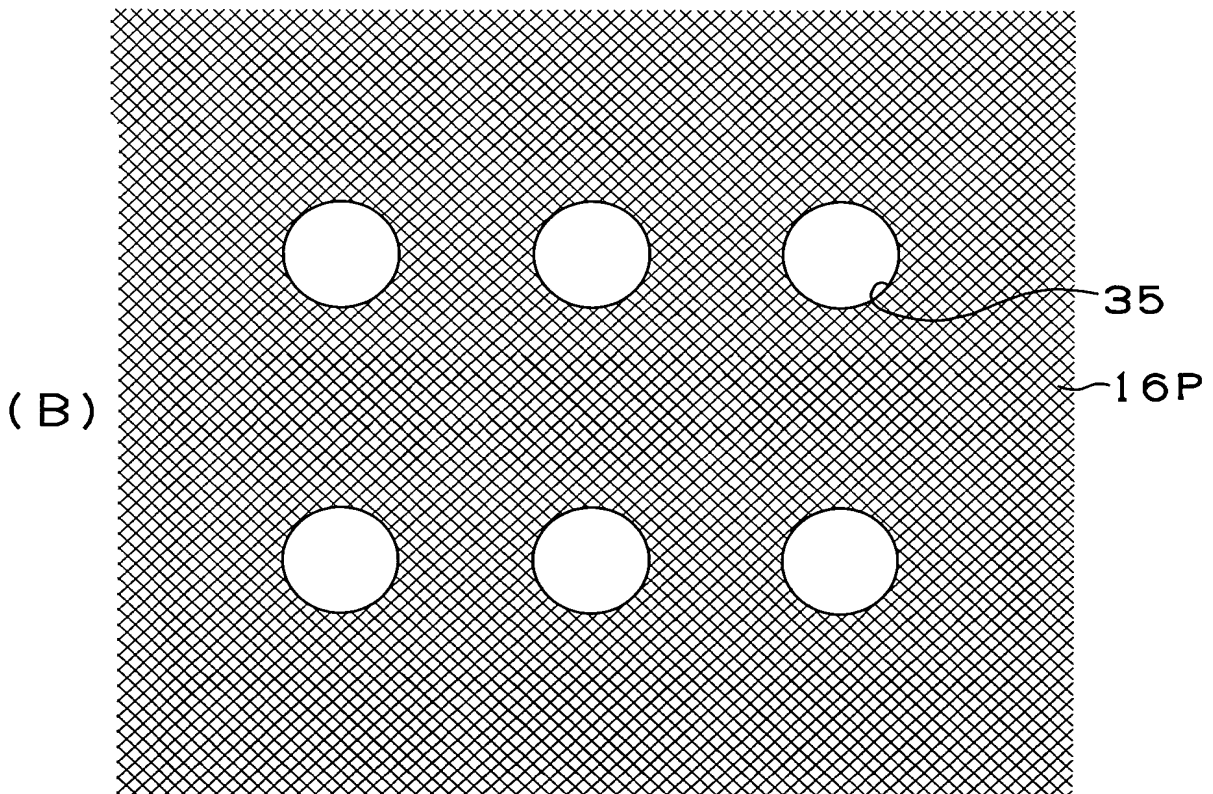
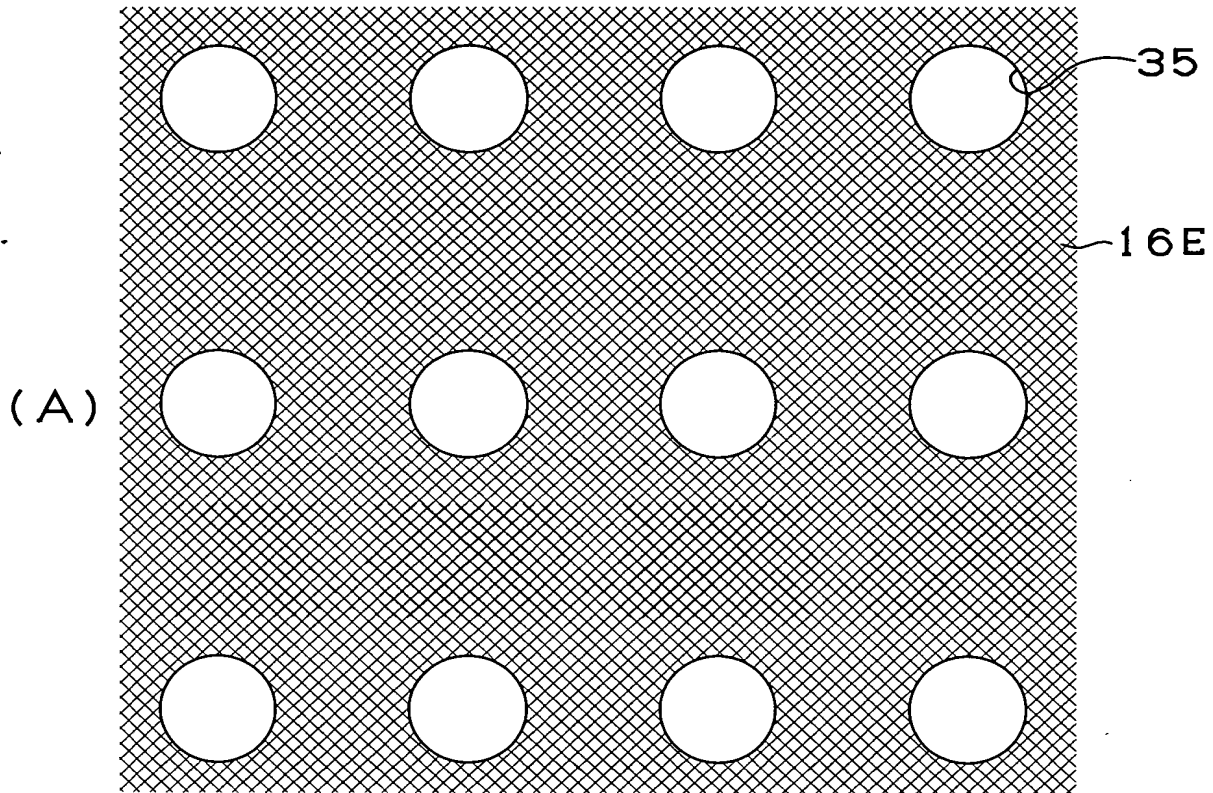
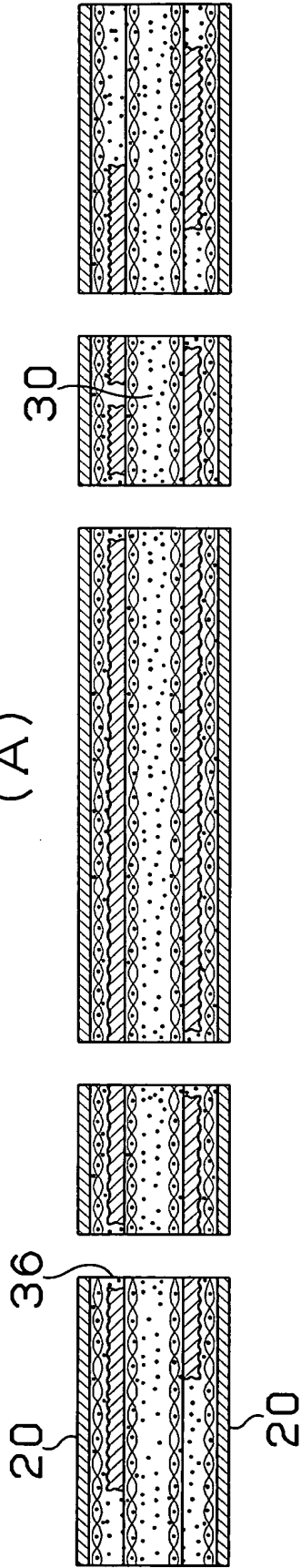
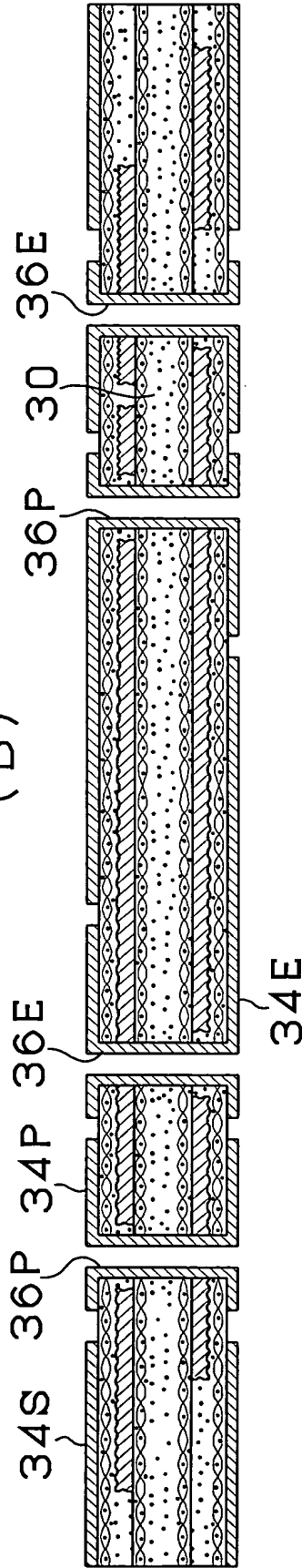


Fig.20

(A)



(B)



(C)

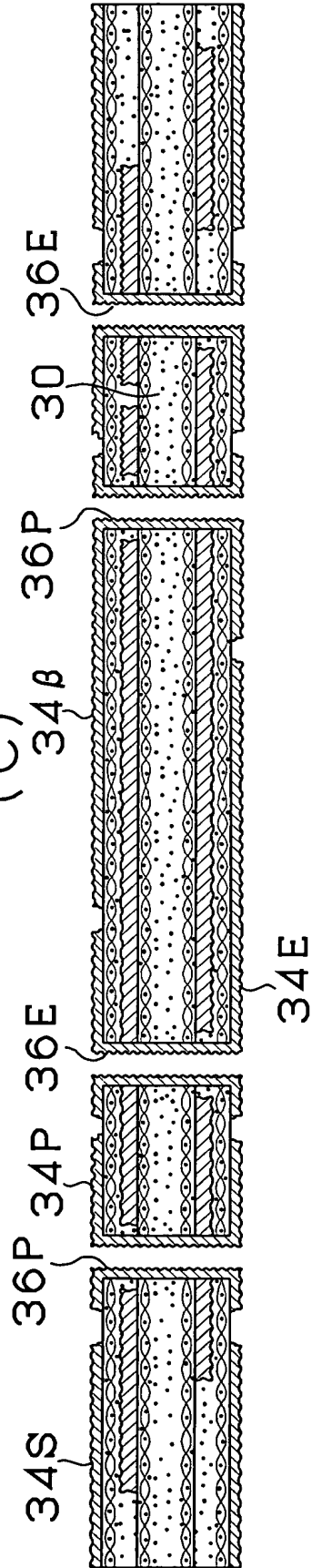
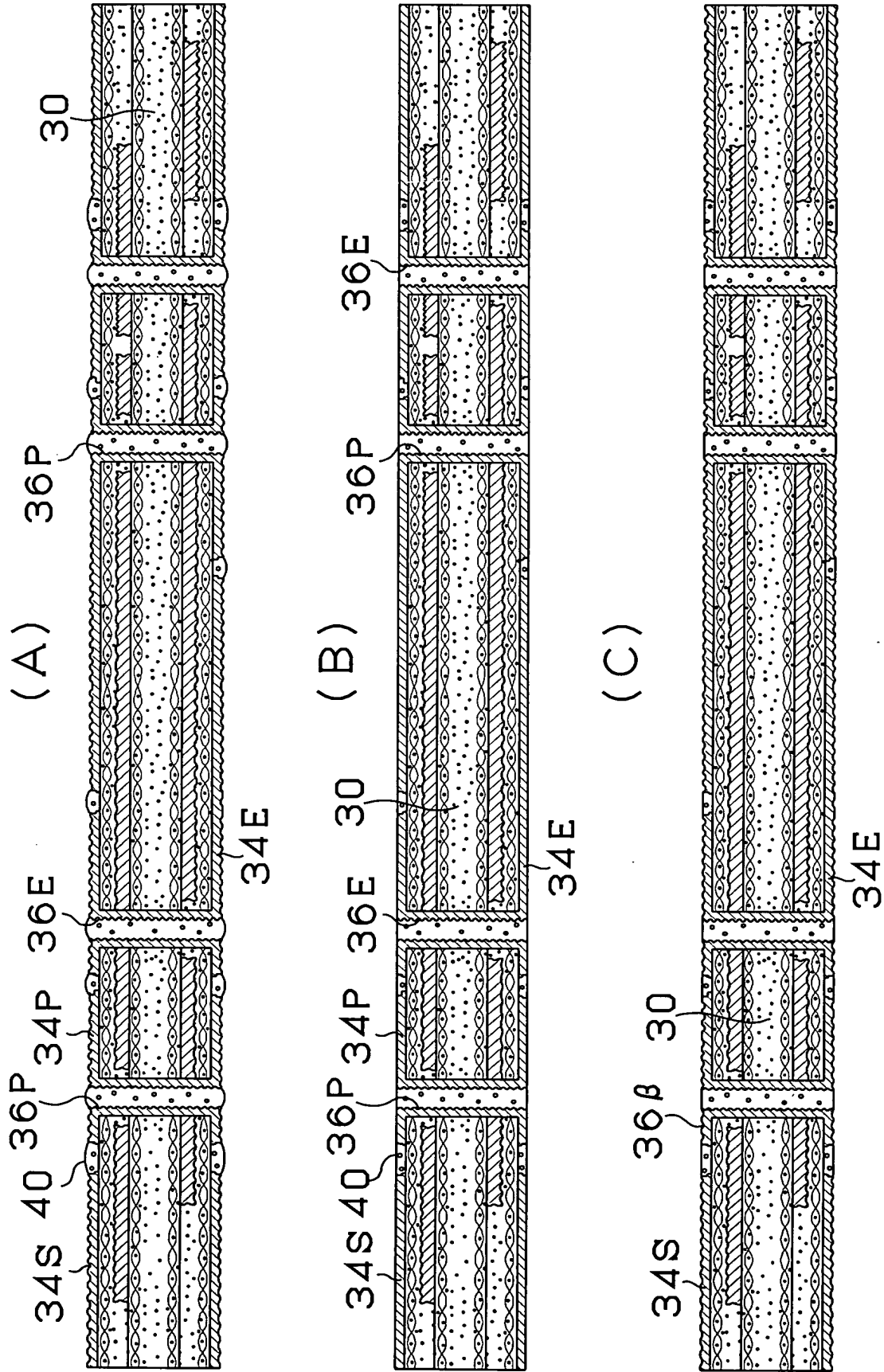


Fig.21



[illegible]

Fig. 23

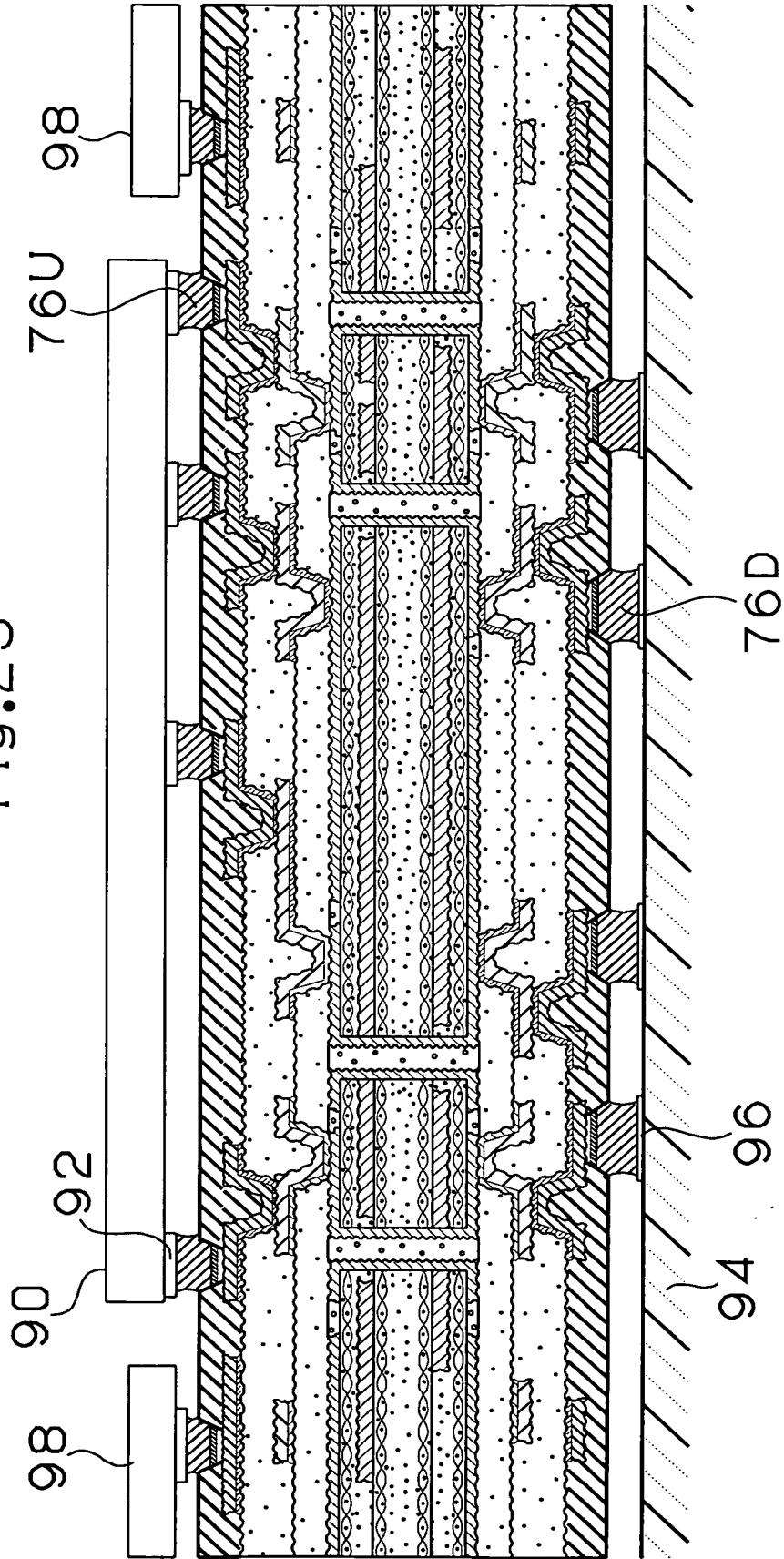


Fig. 24

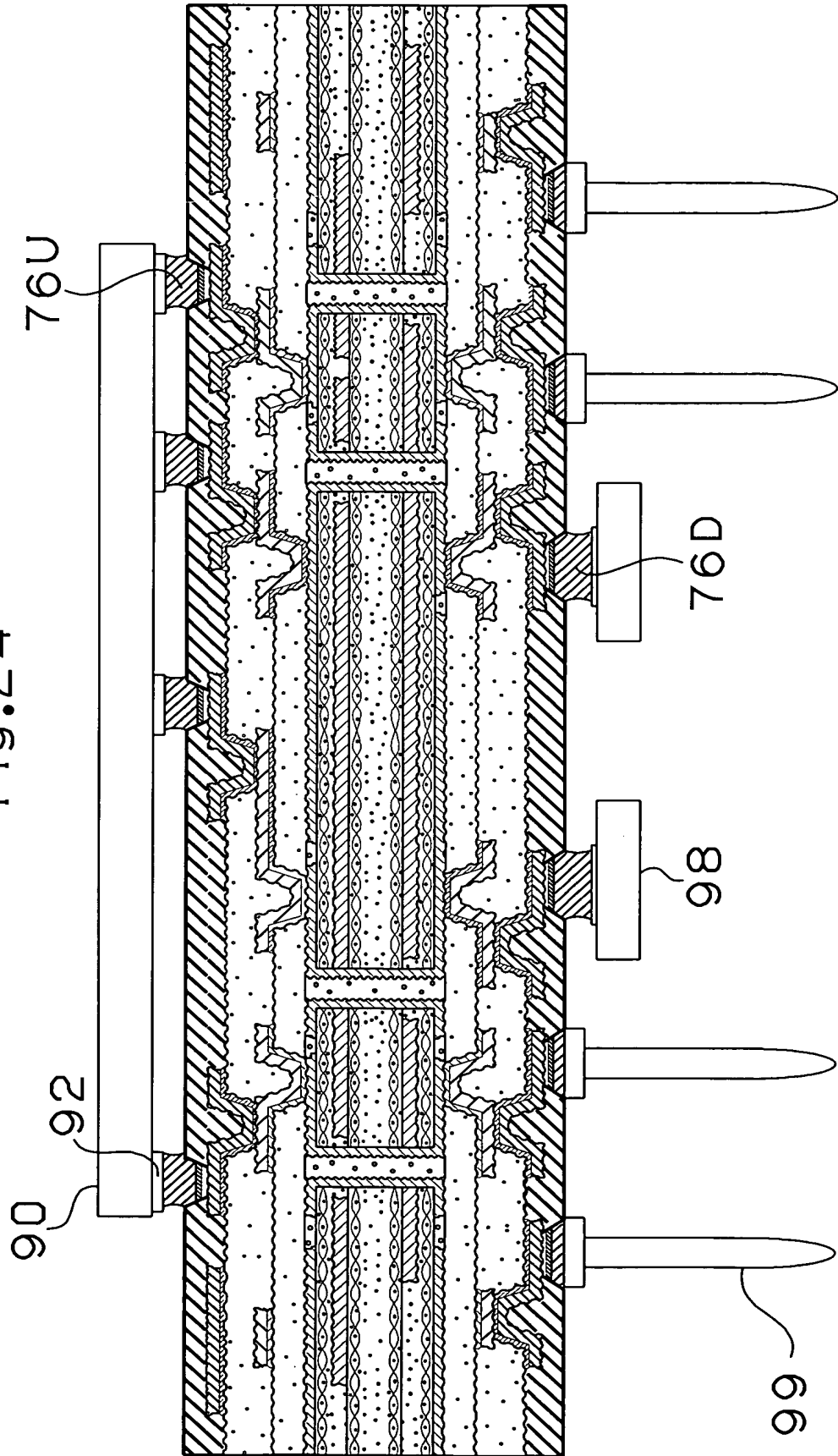


Fig. 25

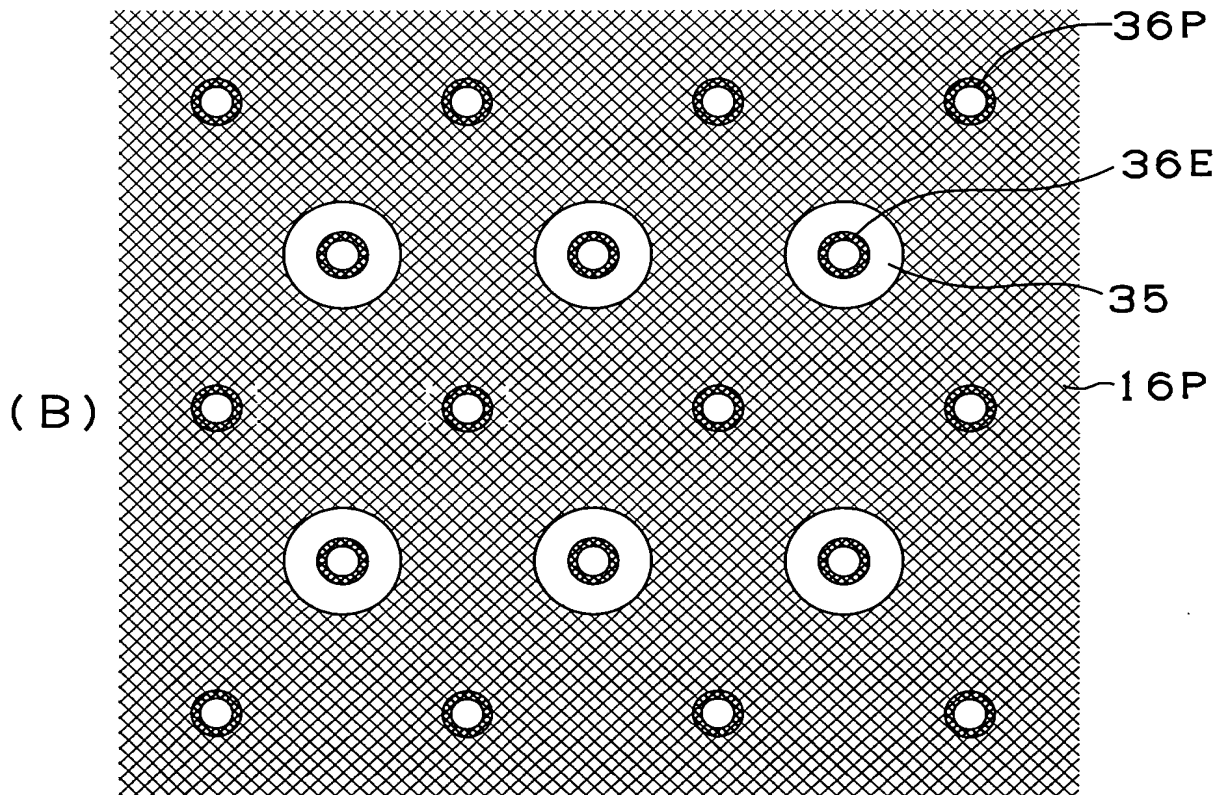
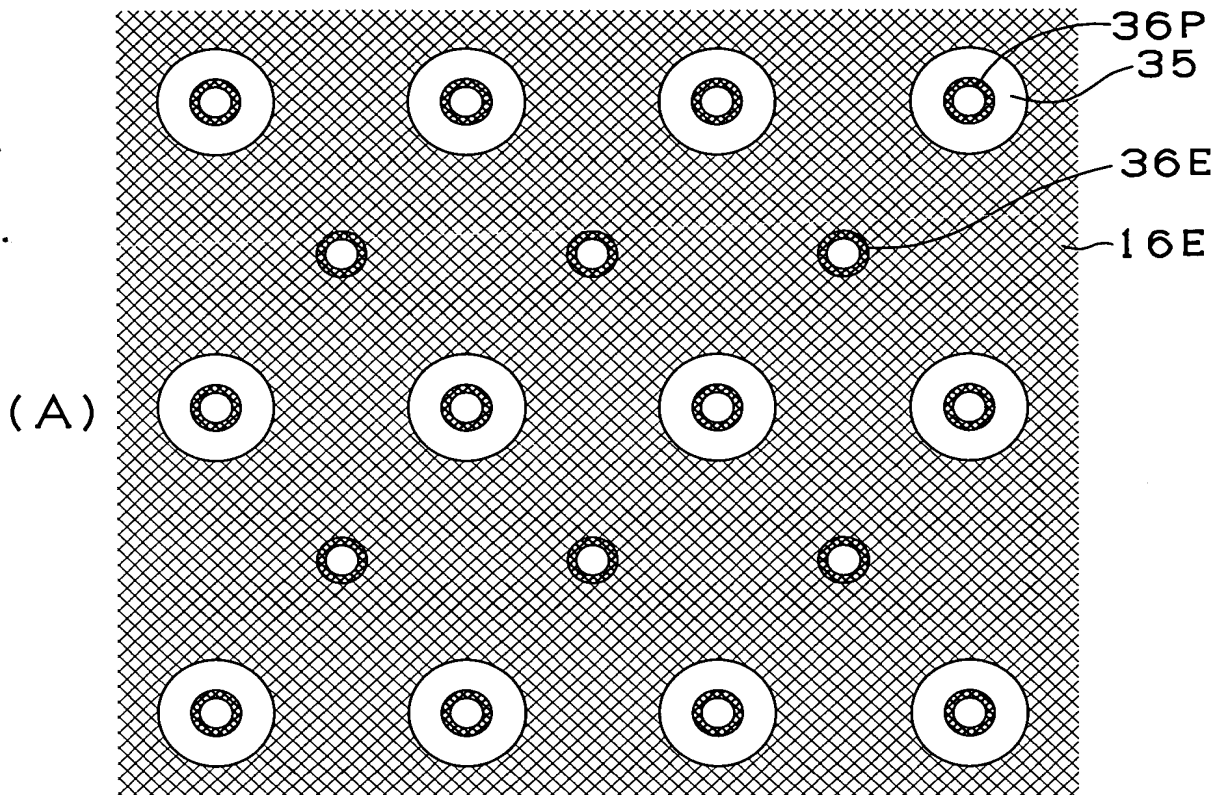
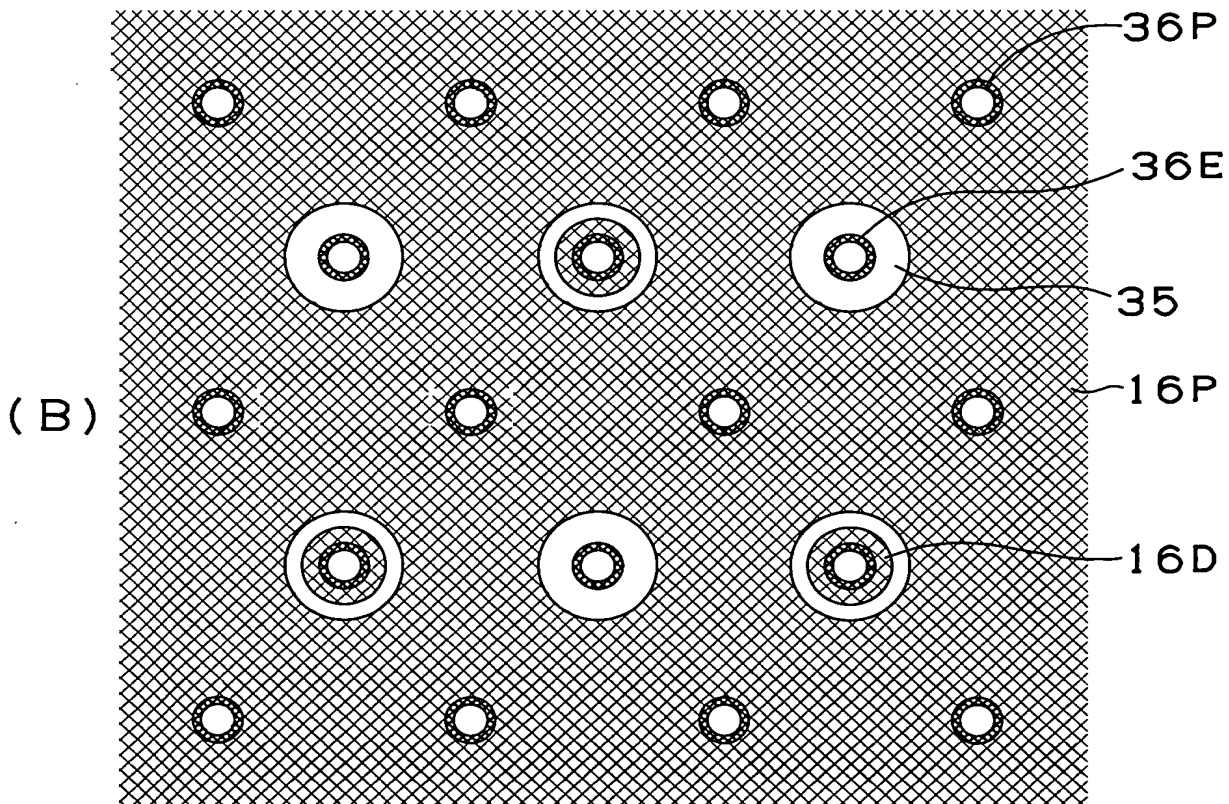
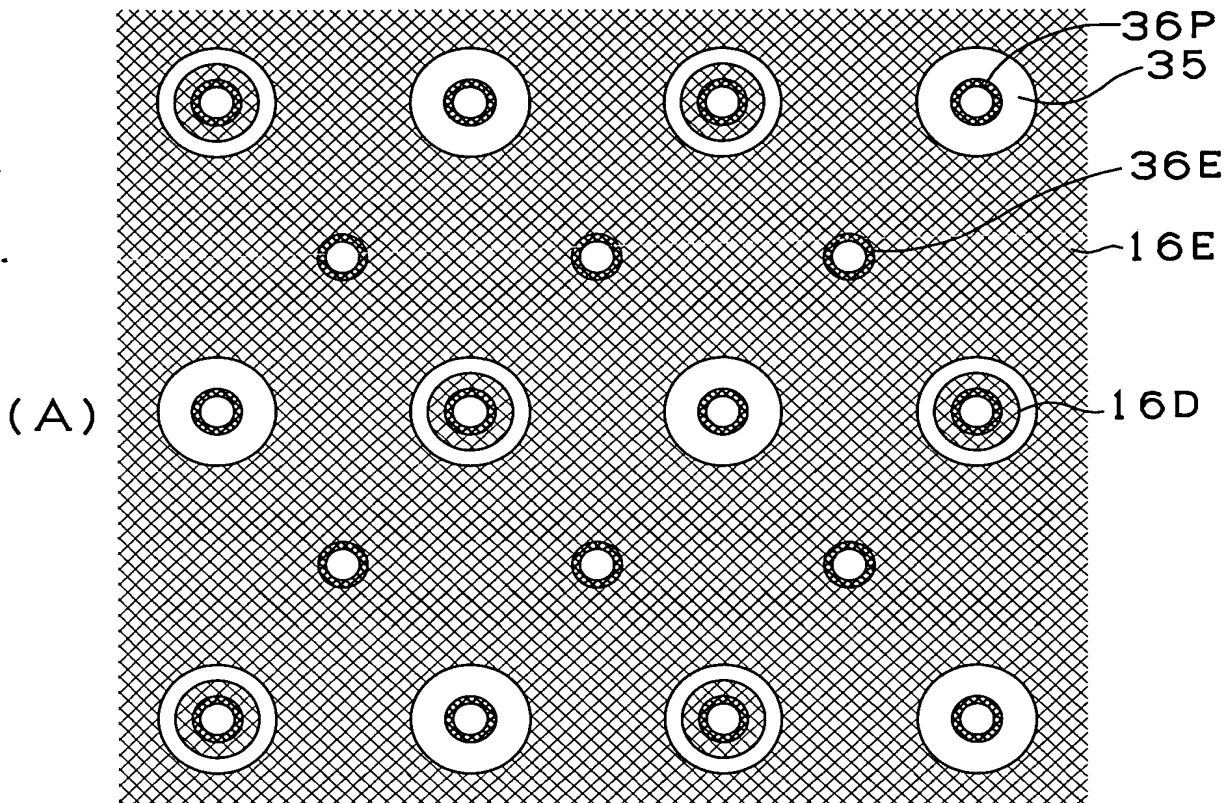


Fig. 26



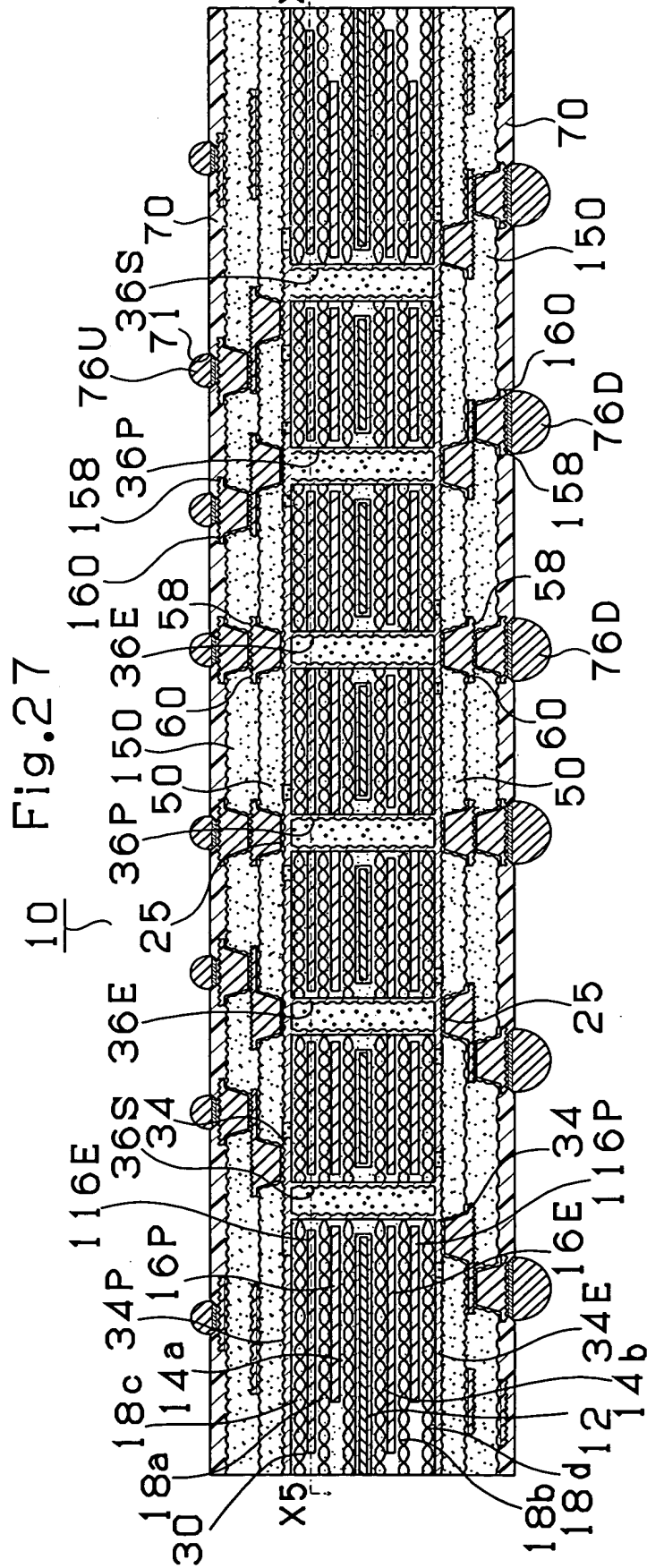
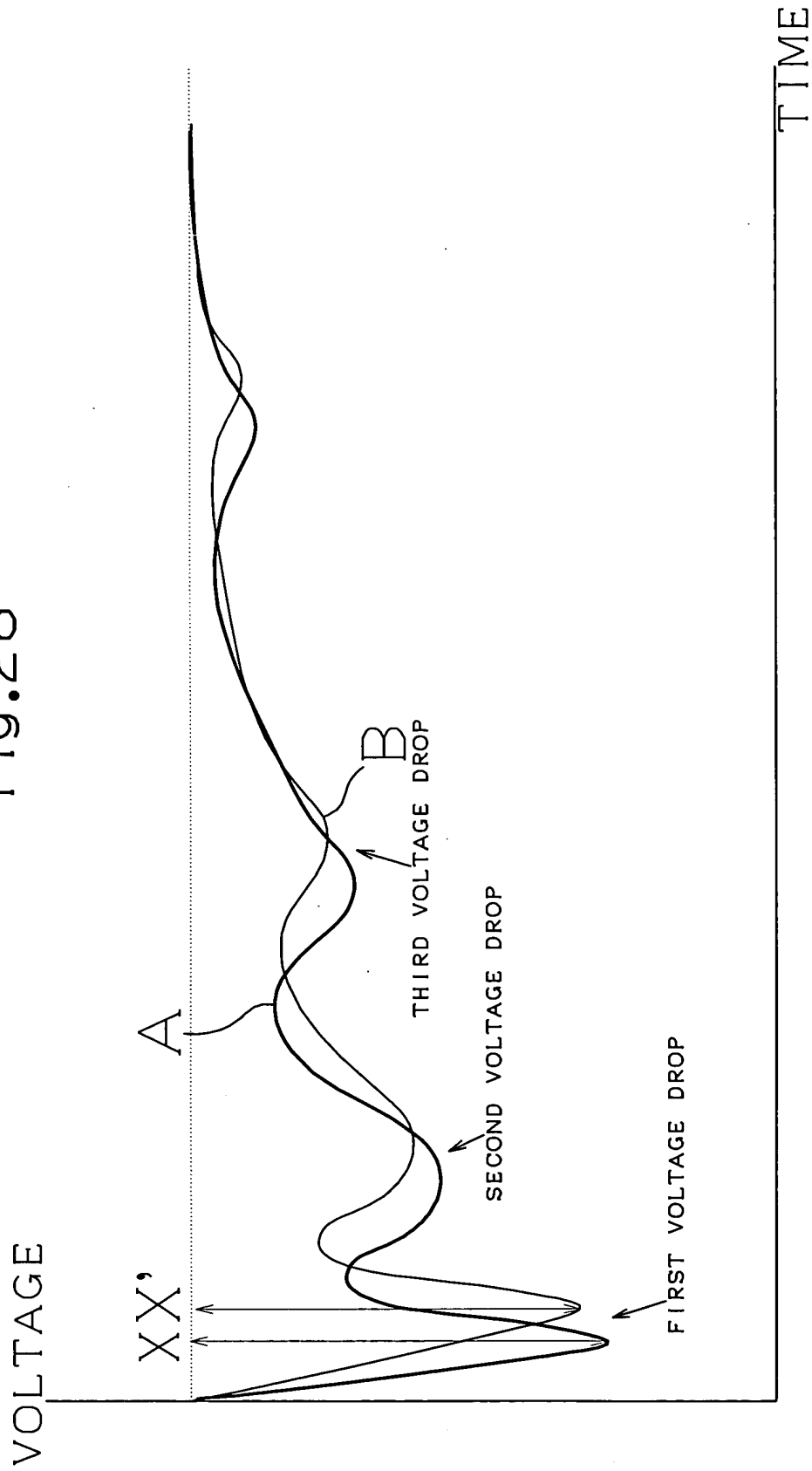


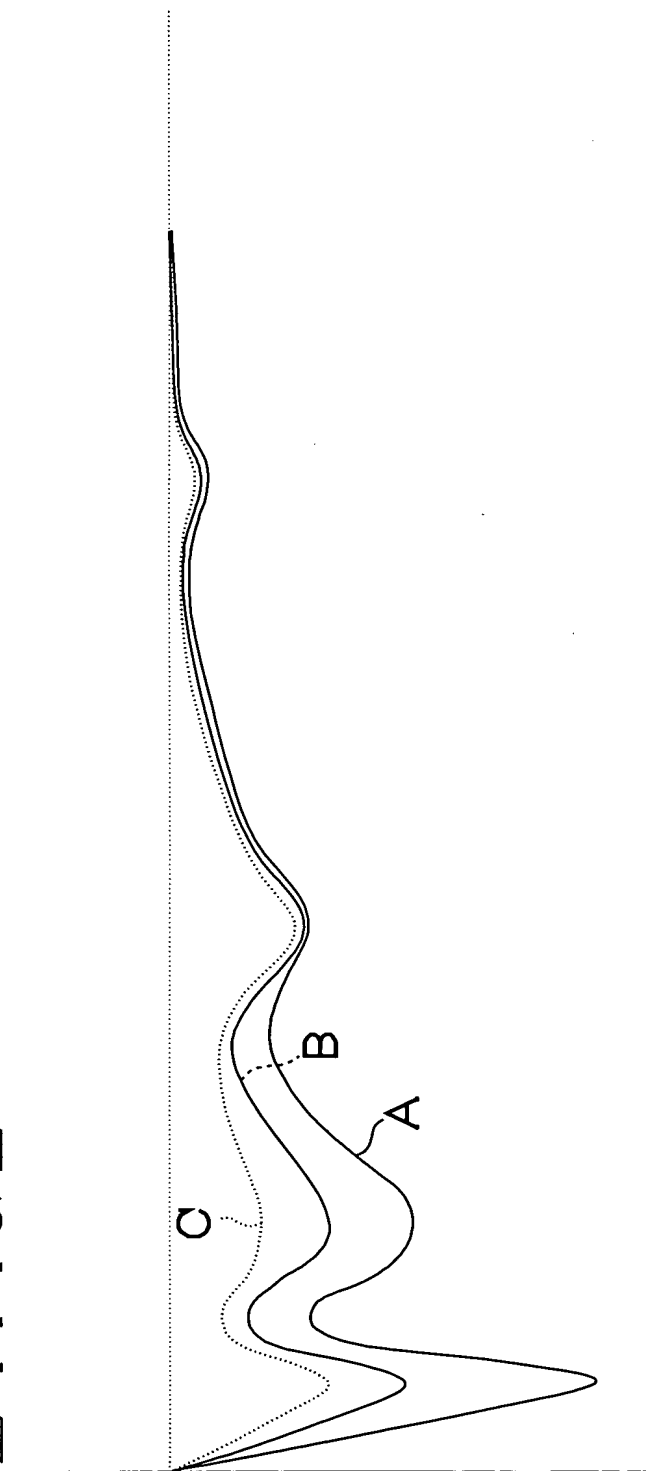
Fig.28



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Fig. 29

VOLTAGE

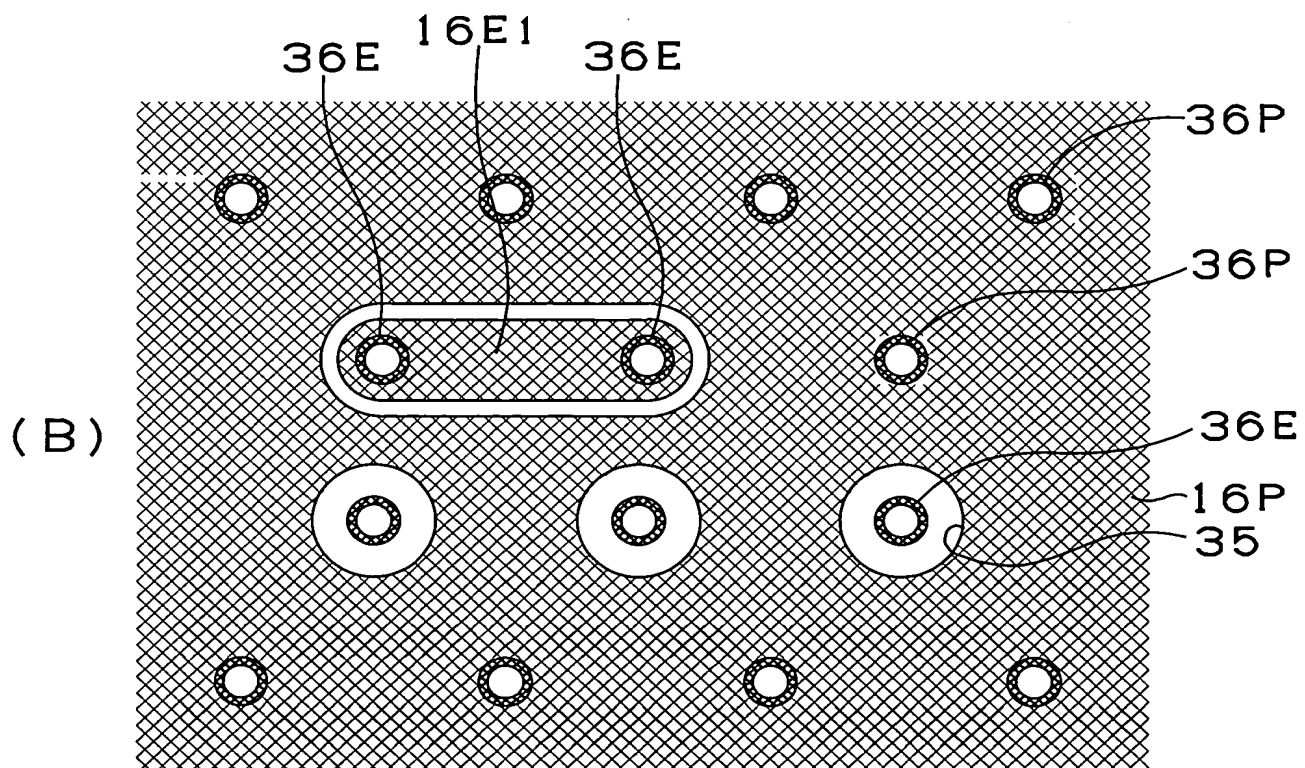
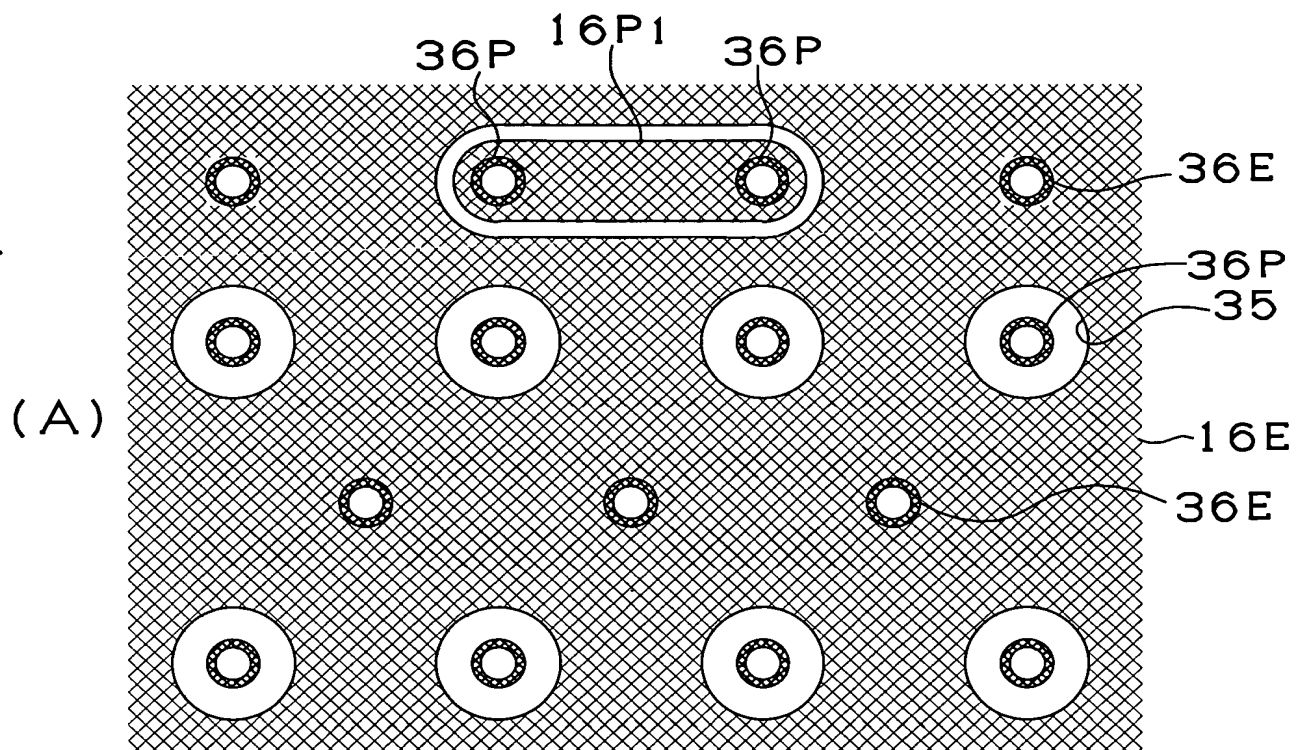


TIME

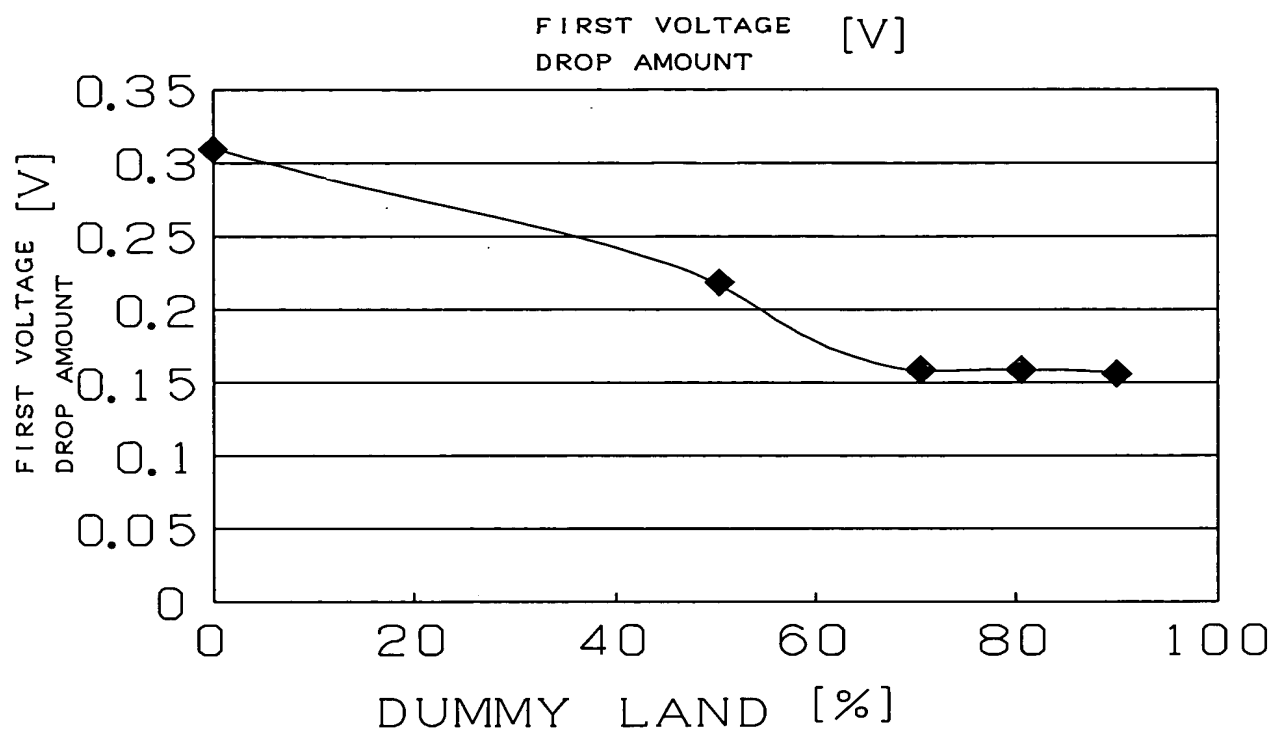
Fig.30

#	THICKNESS OF CONDUCTOR OF BU LAYER (μ m)	THICKNESS OF CONDUCTOR IN INNER LAYER OF MULTILAYER CORE (μ m)	REGION HAVING NO DUMMY LAND OR/AND PERCENTAGE THEREOF	AMOUNT OF VOLTAGE DROP (V)			PRESENCE/ABSENCE OF IC MALFUNCTION		
				FIRST TIME	SECOND TIME	THIRD TIME	#1(3.06 GHz400MHz)	#2(3.2 GHz,800MHz)	#3 (3.46GHz,1066MHz)
SECOND EMBODIMENT-11	15	30	JUST BELOW IC	0.154	0.116	0.086	NONE	NONE	YES
SECOND EMBODIMENT-12	15	30	50%	0.222	0.132	0.086	NONE	YES	YES
SECOND EMBODIMENT-13	15	30	70%	0.206	0.128	0.086	NONE	NONE	YES
SECOND EMBODIMENT-14	15	30	80%	0.202	0.126	0.087	NONE	NONE	YES
SECOND EMBODIMENT-15	15	30	90%	0.205	0.122	0.085	NONE	NONE	YES
SECOND EMBODIMENT-16	15	45	JUST BELOW IC	0.137	0.108	0.078	NONE	NONE	NONE
SECOND EMBODIMENT-17	15	60	JUST BELOW IC	0.135	0.108	0.076	NONE	NONE	NONE
SECOND EMBODIMENT-18	15	75	JUST BELOW IC	0.130	0.106	0.074	NONE	NONE	NONE
SECOND EMBODIMENT-19	15	75	70%	0.132	0.106	0.074	NONE	NONE	NONE
SECOND EMBODIMENT-20	15	45	30% JUST BELOW	0.201	0.123	0.078	NONE	NONE	YES
SECOND EMBODIMENT-21	15	60	30% JUST BELOW	0.159	0.118	0.076	NONE	NONE	NONE
SECOND EMBODIMENT-22	15	75	30% JUST BELOW	0.155	0.117	0.074	NONE	NONE	NONE
SECOND EMBODIMENT-23	15	150	30% JUST BELOW	0.154	0.116	0.072	NONE	NONE	NONE
SECOND EMBODIMENT-24	15	300	30% JUST BELOW	0.208	0.129	0.086	NONE	NONE	YES
SECOND EMBODIMENT-25	15	45	50% JUST BELOW	0.165	0.120	0.078	NONE	NONE	NONE
SECOND EMBODIMENT-26	15	60	50% JUST BELOW	0.155	0.117	0.076	NONE	NONE	NONE
SECOND EMBODIMENT-27	15	75	50% JUST BELOW	0.155	0.117	0.074	NONE	NONE	NONE
SECOND EMBODIMENT-28	15	150	50% JUST BELOW	0.155	0.117	0.072	NONE	NONE	NONE
SECOND EMBODIMENT-29	15	300	50% JUST BELOW	0.201	0.129	0.086	NONE	NONE	YES
SECOND EMBODIMENT-30	15	45	70% JUST BELOW	0.155	0.117	0.078	NONE	NONE	NONE
SECOND EMBODIMENT-31	15	60	70% JUST BELOW	0.155	0.117	0.076	NONE	NONE	NONE
SECOND EMBODIMENT-32	15	75	70% JUST BELOW	0.155	0.117	0.074	NONE	NONE	NONE
SECOND EMBODIMENT-33	15	150	70% JUST BELOW	0.155	0.117	0.072	NONE	NONE	NONE
SECOND EMBODIMENT-34	15	300	70% JUST BELOW	0.203	0.127	0.086	NONE	NONE	YES
SECOND EMBODIMENT-35	15	60	50%	0.201	0.130	0.078	NONE	NONE	YES
SECOND EMBODIMENT-36	15	30	50% JUST BELOW	0.204	0.121	0.078	NONE	NONE	YES
SECOND COMPARATIVE EXAMPLE-3	15	5	NONE	0.306	0.150	0.087	YES	YES	YES

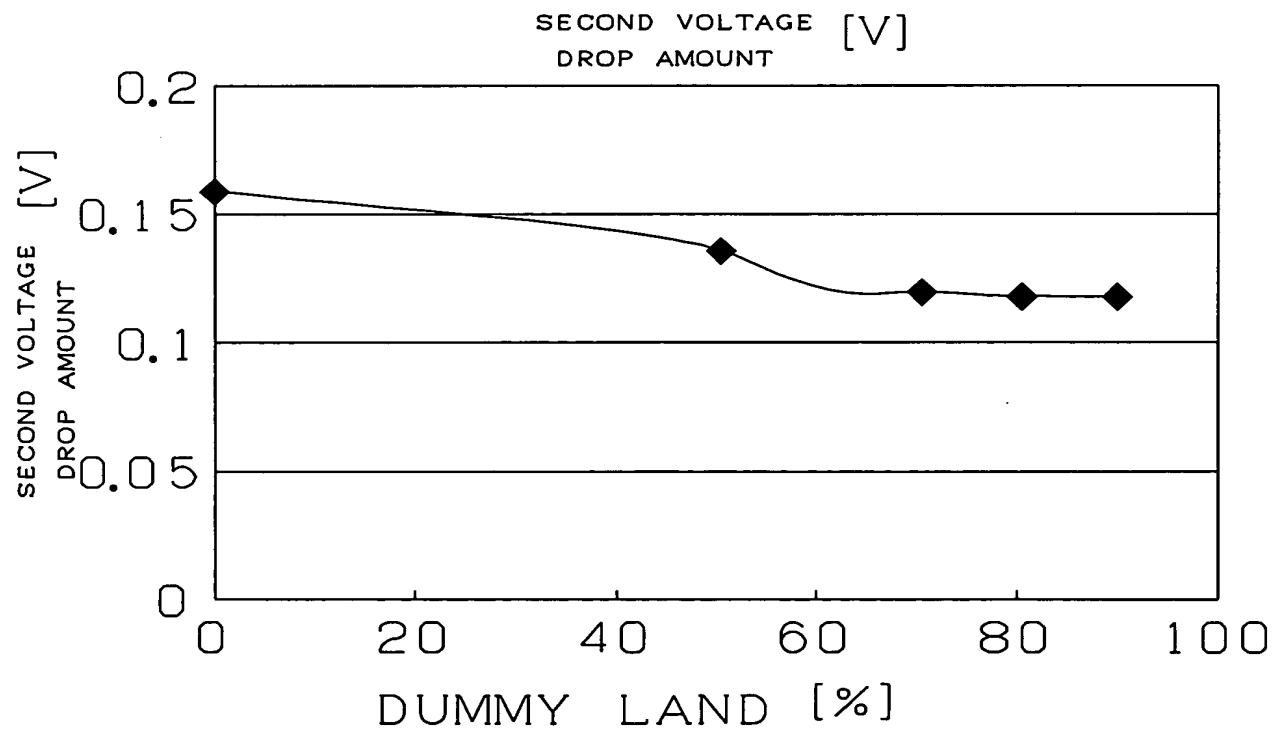
Fig. 31



32/40
Fig.32
(A)



(B)

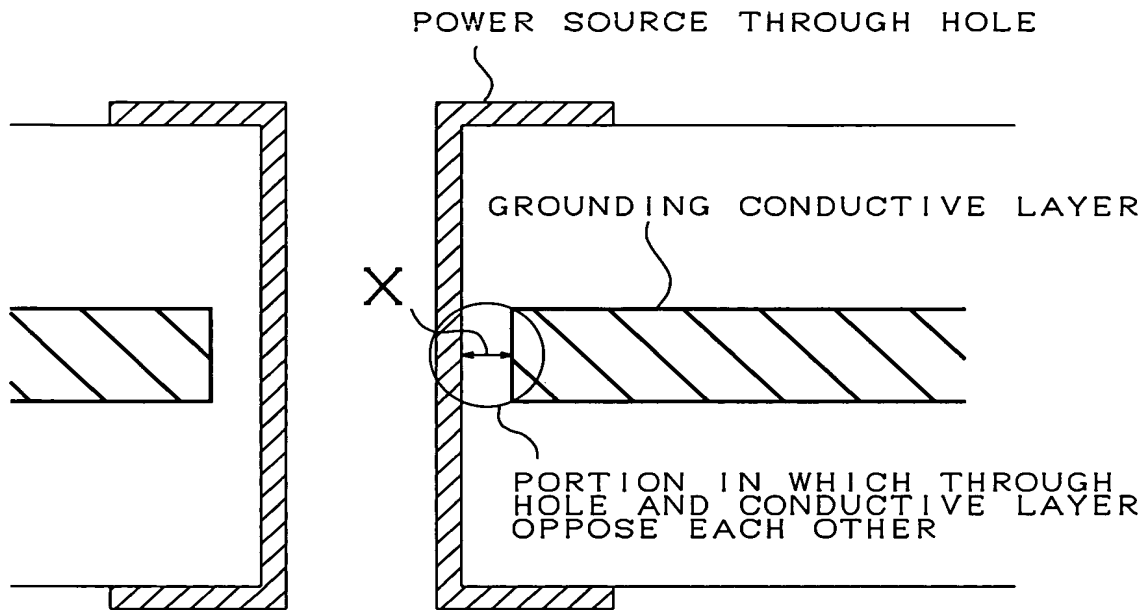


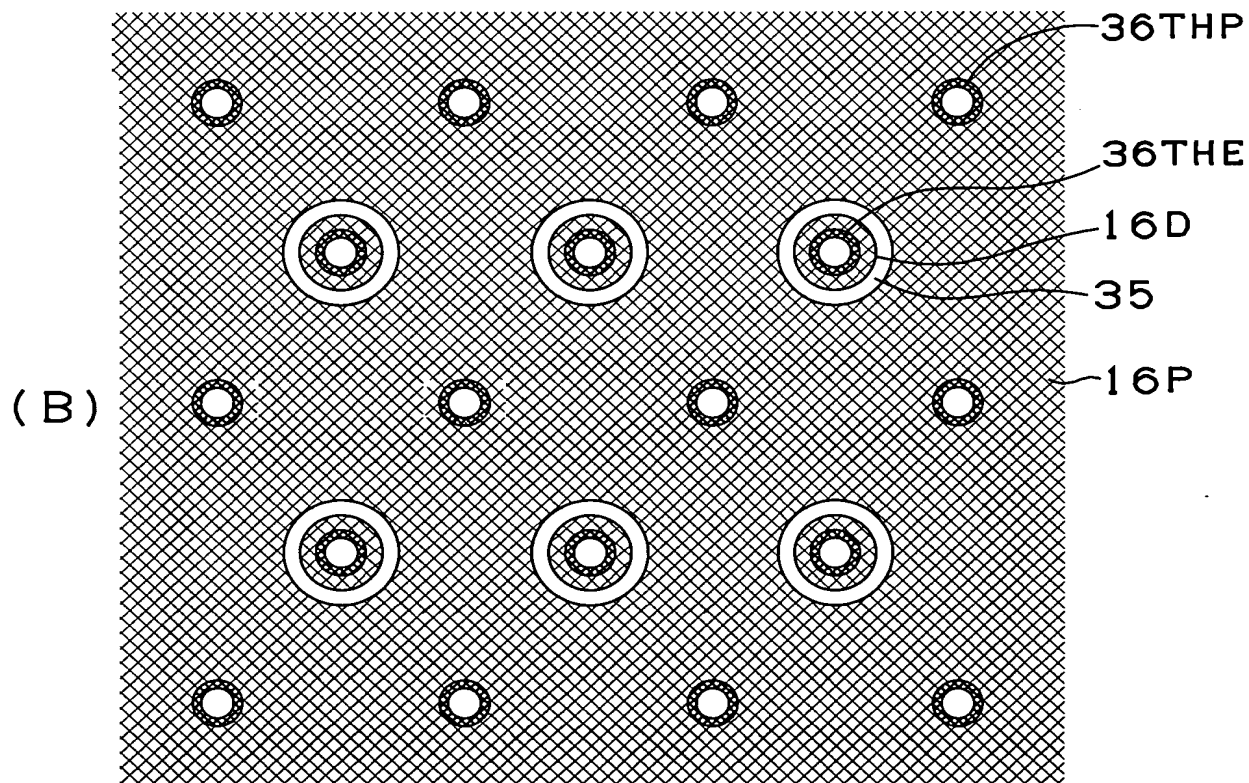
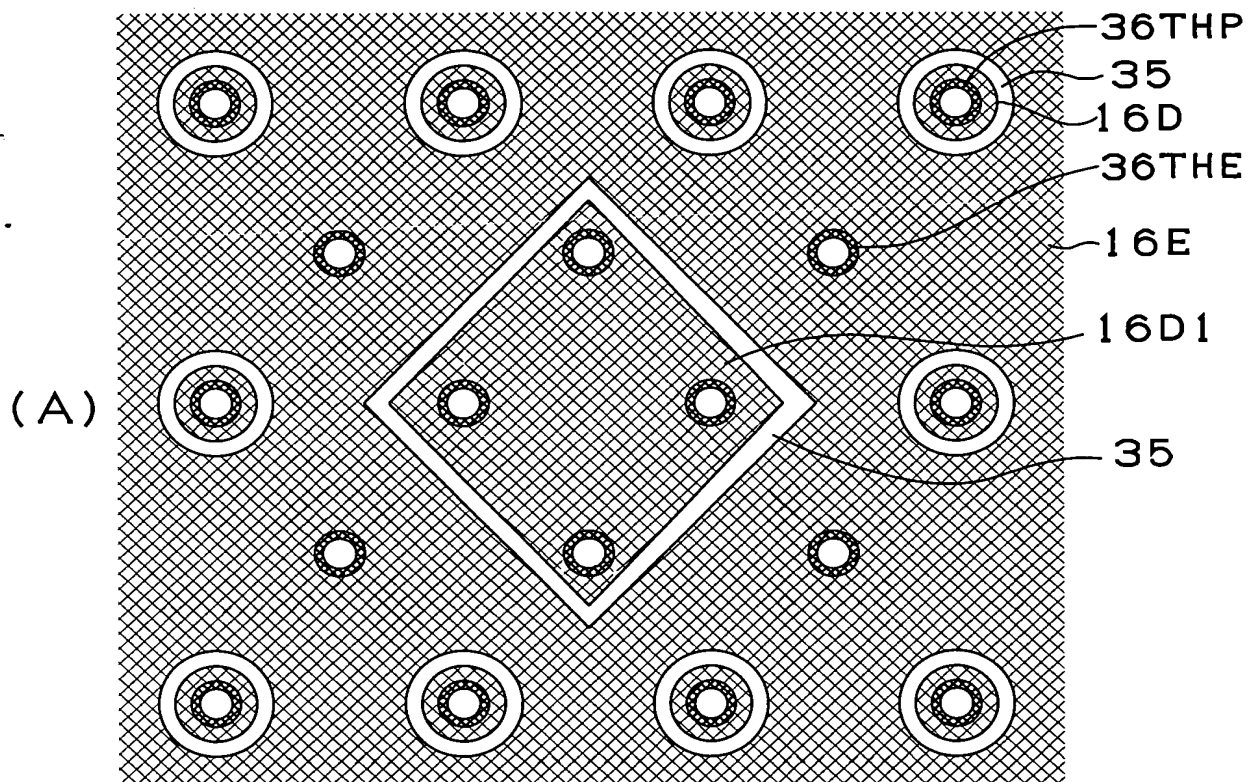
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Fig.33

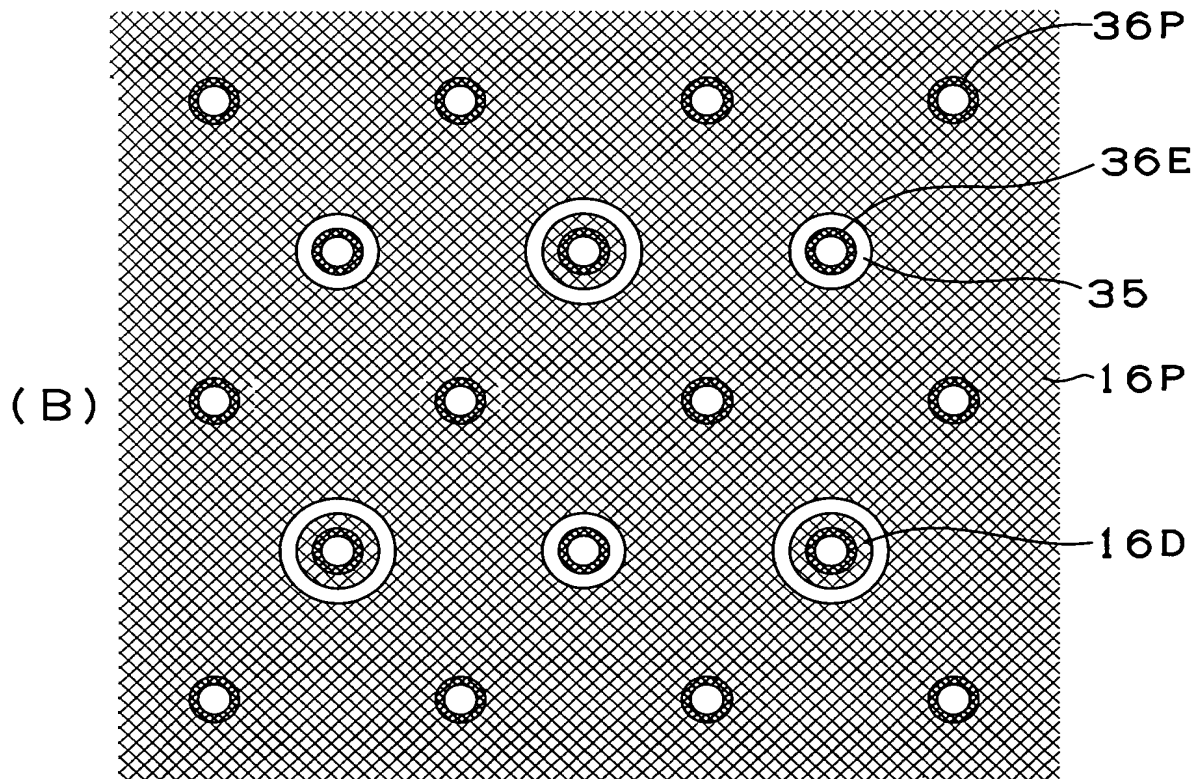
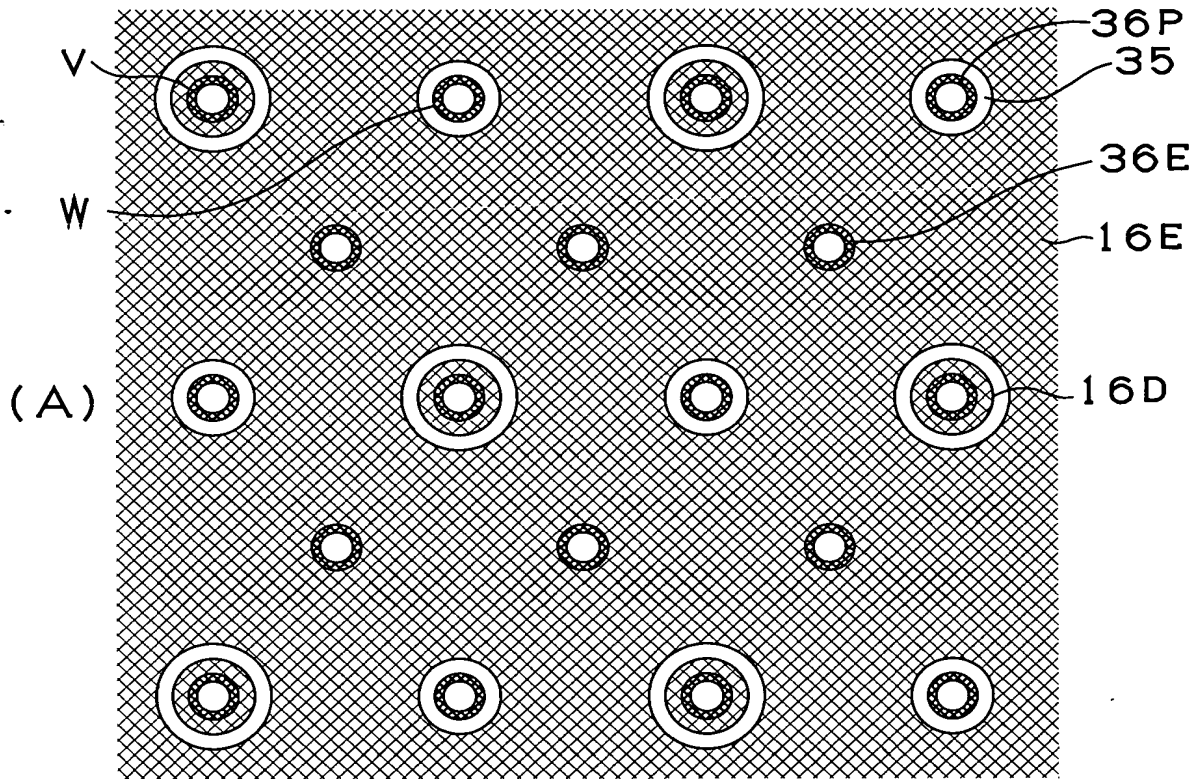
#	THICKNESS OF Cu IN BUILT-UP LAYER (μ m)	THICKNESS OF Cu IN INNER LAYER OF MULTILAYER CORE (μ m)	REGION HAVING NO DUMMY LAND OR PERCENTAGE THEREOF	AMOUNT OF VOLTAGE DROP (V)			PRESENCE/ ABSENCE OF IC MALFUNCTION
				FIRST TIME	SECOND TIME	THIRD TIME	
SECOND EMBODIMENT1	15	30	JUST BELOW IC	0.157	0.118	0.089	NONE
SECOND EMBODIMENT2	15	30	50%	0.218	0.135	0.088	YES
SECOND EMBODIMENT3	15	30	70%	0.158	0.120	0.088	NONE
SECOND EMBODIMENT4	15	30	80%	0.158	0.118	0.089	NONE
SECOND EMBODIMENT5	15	30	90%	0.155	0.118	0.087	NONE
SECOND EMBODIMENT6	15	45	JUST BELOW IC	0.140	0.110	0.088	NONE
SECOND EMBODIMENT7	15	60	JUST BELOW IC	0.138	0.110	0.088	NONE
SECOND EMBODIMENT8	15	75	JUST BELOW IC	0.133	0.108	0.086	NONE
SECOND EMBODIMENT9	15	75	70%	0.135	0.108	0.086	NONE
SECOND COMPARATIVE EXAMPLE1	15	30	NONE	0.310	0.153	0.089	YES
SECOND COMPARATIVE EXAMPLE2	15	15	NONE	0.389	0.160	0.108	YES

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Fig.34

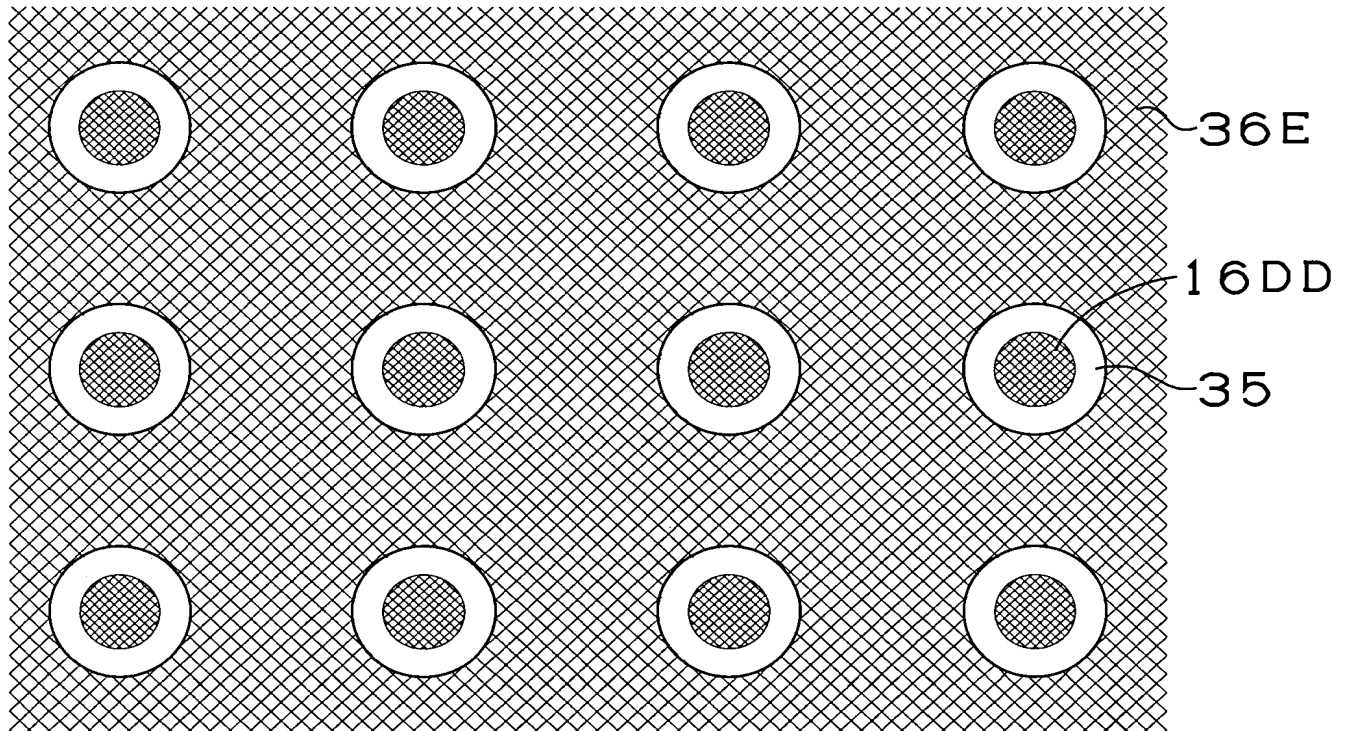


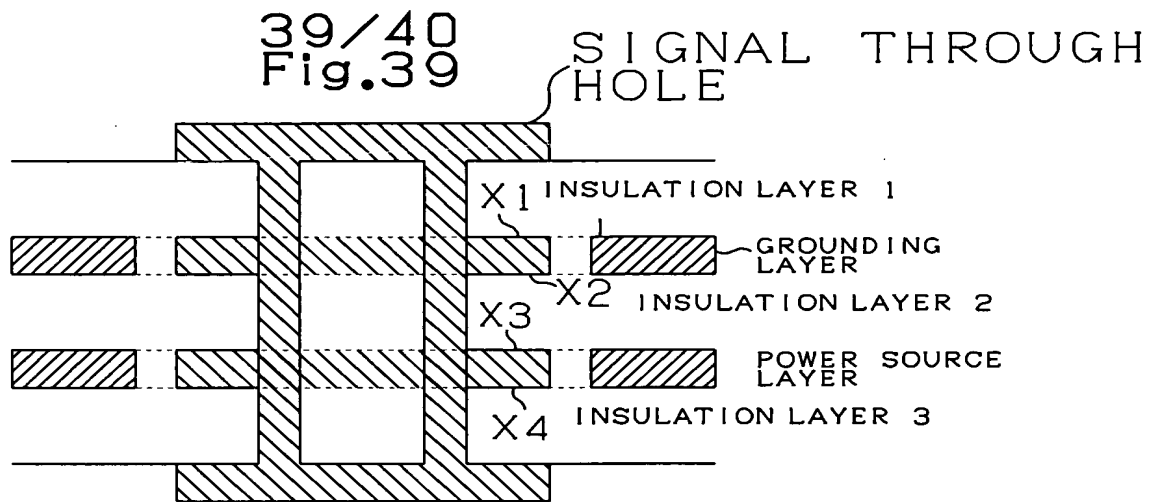


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Fig.37



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Fig.38





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Fig.40

